



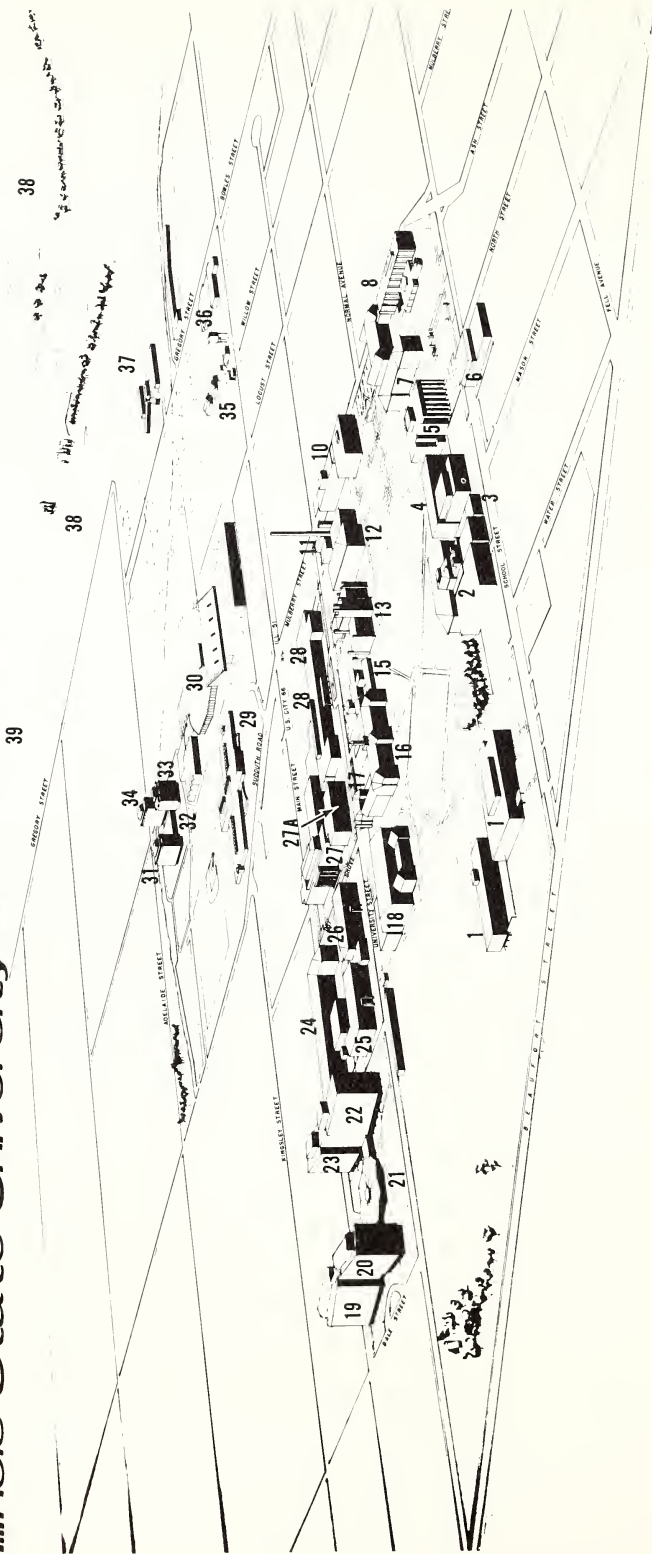
ANNUAL GRADUATE CATALOG 1966-67



ILLINOIS STATE UNIVERSITY BULLETIN
NORMAL, ILLINOIS

Campus Map

Illinois State University



- | | | |
|---------------------------------|---|----------------------------|
| 1. Centennial East | 26. Barton Hall | 32. Linkins Center |
| 1. Westhoff Theatre | 27. Fairchild Hall of Special Education | 33. Haynie Hall |
| 1-A. Centennial West | 27-A. Cooper Health Service | 34. Wright Hall |
| 2. Milner Library | 28. Metcalf School | 35. Huddelson Museum |
| 3. Textbook Service | 28-A. Hayden Auditorium | 36. University High School |
| 4. University Union | 29. Turner Hall | 37. Cardinal Court |
| 5. Hovey Hc I (Administration) | 30. Horton Physical Education Building | 38. University Golf Course |
| 6. Financial Aids Office | 31. Wilkins Hall | 39. University Form |
| 7. Moulton Hall | | |
| 8. Falmley Hall of Science | | |
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| 14. Green House | | |
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| 18. McCormick Gymnasium | | |
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| 20. Colby Hall | | |
| 21. Feeney Center | | |
| 22. Hamilton Hall | | |
| 23. Whitten Hall | | |
| 24. Walker Hall | | |
| 25. Dunn Hall | | |

Illinois State University
BULLETIN

GRADUATE CATALOG—1966-1967

STATE OF ILLINOIS—LAND OF LINCOLN
OTTO F. KERNER, GOVERNOR

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University Calendar

1966, SUMMER SESSIONS

June 20	Opening of and registration for eight-week summer session
June 24	Last day to apply for graduation in August
June 24	Last day for late registration and course changes
July 16	Comprehensive examination—8:00-12:00
July 29	Last day to drop a course
August 9	Last day to file theses for August 12 graduation
August 11-12	Final examinations for eight-week session
August 12	Summer commencement; close of eight-week session
August 15	Opening of post-session; classes begin, 2:00 p.m.

1966, FIRST SEMESTER

September 12	Registration for late afternoon, evening, and Saturday courses according to a published schedule
September 13-15	Registration according to a published schedule
September 16	Classes begin
September 24	Last day for late registration and course changes
September 29	Last day to apply for 2nd semester student teaching assignment
October 7	Foreign language examinations
October 28	Last day to apply for graduation in January
October 29	Homecoming
November 23	Thanksgiving vacation begins, 11:00 a.m.
November 28	Thanksgiving vacation ends, 8:00 a.m.
December 16	Last day to drop a course
December 16	Christmas vacation begins after scheduled classes

1967

January 3	Christmas vacation ends, 8:00 a.m.
January 14	Comprehensive examination, 1:00-5:00
January 19-25	Final examinations for first semester
January 25	Last day to file theses for January 28 graduation

1967 SECOND SEMESTER

January 30	Registration for late afternoon, evening, and Saturday courses according to a published schedule
Jan. 31-Feb. 2	Registration according to a published schedule
February 3	Classes begin
February 11	Last day for late registration and course changes
March 3	Foreign language examinations
March 17	Last day to apply for graduation for June 10 commencement
March 17	Spring vacation begins after scheduled classes
March 28	Spring vacation ends, 8:00 a.m.
May 12	Last day to drop a course
May 13	Comprehensive examination, 1:00-5:00
May 30	Memorial Day Holiday
June 1-7	Final examinations for second semester
June 7	Last day to file theses for June 10 graduation
June 10	One-hundred-eighth Annual Commencement

1967, SUMMER SESSIONS

June 19-Aug. 11	Eight-week summer session
August 14	Opening of post session

Board of Governors of State Colleges and Universities

PAUL STONE (Sullivan)	Chairman
NOBLE J. PUFFER (Barrington)	Vice Chairman
FREDERICK H. McKELVEY (Springfield)	Secretary

Appointed Members

1961-1967

WILLIAM E. McBRIDE	Chicago
NOBLE J. PUFFER	Barrington
PAUL STONE	Sullivan

1963-1969

J. BON HARTLINE	Anna
ARTHUR R. HIGGINS	Quincy
W. I. TAYLOR, M.D.	Canton

1965-1971

MORTON H. HOLLINGSWORTH	Joliet
RICHARD J. NELSON	Evanston
ROYAL A. STIPES, JR.	Champaign

Ex-Officio Members

A. R. IMLE, representing Director of Finance, JAMES A. RONAN	Hillsboro
RAY PAGE, Superintendent of Public Instruction	Springfield
FREDERICK H. McKELVEY, Executive Officer	Springfield

Illinois State University is governed by the Board of Governors of State Colleges and Universities. The Board consists of nine members appointed by the governor for terms of six years, with two ex-officio members designated by law.

Administrative Officers

President
Vice President for Administrative Affairs
Acting Dean of the Faculty
Dean of the Graduate School
Dean of the Undergraduate School
Director of Admissions and Records
Executive Assistant to the President
Business Manager

Robert G. Bone
Eric H. Johnson
Claude M. Dillinger
Arlan C. Helgeson
Francis B. Belshe
Howard J. Ivens
James Fisher
Preston Ensign

Coordinator of Evaluative Services
Director of Public and Special Services
Director of Extension and Field Services
Director of Housing
Dean of Students
Director of Student Financial Aids
Dean of Men
and Director of Veteran's Services
Associate Dean of Students
and Dean of Women

Arthur H. Larsen
Harold E. Gibson
Francis R. Brown
Isabelle Terrill
Richard E. Hulet
Gerald A. Curl

John W. Gillis

Anna L. Keaton

Graduate Council

*Arlan C. Helgeson, Dean of the Graduate School, Chairman
*Robert G. Bone, President of the University
*Claude M. Dillinger, Acting Dean of the Faculty
*Arthur W. Watterson, Head of the Department of Geography and Chairman of the Graduate Survey Committee
*Florence Davis, Head of the Department of Home Economics and Secretary of the Graduate Council
Thomas E. Comfort, Head of the Department of Foreign Languages
Victor E. Gimmetstad, Head of the Department of English
F. Louis Hoover, Head of the Department of Art
Howard J. Ivens, Director of Admissions and Records
Bryant H. Jackson, Acting Director of Libraries
Benjamin J. Keeley, Head of the Department of Social Sciences
Ellen D. Kelly, Head of the Department of Health and Physical Education for Women
Clyde T. McCormick, Head of the Department of Mathematics
Helen M. Nance, Director of the Division of Elementary Education
Burton L. O'Connor, Head of the Department of Health and Physical Education for Men
Harold Phelps, Director of the Division of Special Education
Frank N. Philpot, Head of the Department of Education and Psychology
Charles B. Porter, Head of the Department of Industrial Arts
R. Omar Rilett, Head of the Department of Biological Sciences
Bernard L. Ryder, Head of the Department of Physical Sciences
Howard H. Rye, Head of the Department of Music
Herman R. Tiedeman, Director of Test Service
Lewis R. Toll, Head of the Department of Business Education
Charles A. White, Head of the Department of Speech

* Executive Committee of the Graduate Council

The University

Illinois State University is located in the City of Normal, which, together with the adjacent City of Bloomington, forms a community of nearly 60,000 people. The cities lie in central Illinois, approximately 125 miles from Chicago.

Founded as the Illinois State Normal University in 1857, the University was the first state supported institution for higher education in Illinois and the second school for teacher education to be established west of the Allegheny mountains.

In January, 1964, the official name of the University became Illinois State University at Normal. Currently the University enrolls more than 8,600 students.

The Graduate School

The first graduate work at the University was initiated in 1943 with the establishing of a five year program leading to the degree of Master of Science in Education.

In 1962, the Teachers College Board of the State of Illinois, which has since been renamed the Board of Governors of State Colleges and Universities, authorized the granting of Master of Arts and Master of Science degrees. At this time the Board also approved programs leading to a sixth year degree, Specialist in School Administration, as well as programs leading to the degrees, Doctor of Education or Doctor of Philosophy, in Art, Biological Sciences, and Educational Administration.

Under the direction of the Board of Governors and of the Illinois State Board of Higher Education, the University is engaged in a careful expansion of its graduate programs. The Graduate School presently offers advanced work in eighteen academic fields and in the fields of elementary education, special education, school supervision, administration, guidance, and psychological counseling. Master's degree programs in French and Psychology were added in 1966.

It is the chief aim of the Graduate School to provide an atmosphere in which competent students may join a qualified faculty in extending their fields of knowledge, and where they may share experience in research leading to professional improvement and scholarly achievement.

Accreditation

Illinois State University is accredited on the master's level by the North Central Association of Colleges and Secondary Schools and the National Council for Accreditation of Teacher Education. Its doctoral programs were granted preliminary accreditation by the North Central Association in June, 1964. The University holds institutional memberships in the American Council on Education, the American Association of Colleges for Teacher Education, and the Council of Graduate Schools in the United States.

Faculty

All members of the faculty who regularly teach graduate courses have doctor's degrees. The graduate faculty members are listed in this catalog.

The competence of the graduate faculty is not measured in terms of degrees alone, but by the excellence of work in classrooms and laboratories. Many staff members have offered graduate courses in other colleges and universities. Membership and participation in professional organizations, and learned societies, as well as authorship of books, monographs, and articles, have all combined to provide recognition of many staff members as authorities in their fields.

Milner Library

Illinois State University possesses one of the finest libraries among the smaller state universities of the Midwest. Its collection includes approximately 260,000 bound volumes as well as many microfilm editions. The library is a depository for governmental publications and it receives more than 1000 periodicals and scholarly journals.

There are more than 100 carrels for graduate students in the library, along with spacious reading rooms, photocopying equipment, a special room for student typing, a Carnegie collection of recorded music, and extensive collections of children's books and curricular materials. Special collections include one of the largest in the United States on circus history as well as a fine gathering of diaries and manuscripts pertaining to local and regional history.

Science Facilities

The Felmley Hall of Sciences was doubled in size by the completion, in 1964, of an addition housing advanced laboratory and classroom facilities for the biological and physical sciences and including a planetarium. Since the 1867 appointment of John Wesley Powell as lecturer and curator of the natural history museum, the Department of Biological Sciences has maintained an interest in the collection of biological specimens. It possesses one of the largest collections of fish skeletons in the United States and is active also in the collection and identification of bird and reptile skeletons.

A new annex to Schroeder Hall contains modern geology laboratories in addition to large lecture rooms and classrooms.

Turner Hall

The recently completed Jonathan Baldwin Turner Hall, named for the originator of the land grant college movement who played a prominent part in the founding of Illinois State University, houses the departments of Business Education, Home Economics, and Industrial Arts. Of special importance for graduate research in this building is an I.B.M. 1620 computer, available for instruction and research projects.

Laboratory Schools

The Thomas Metcalf School and the University High School serve as laboratory schools for the University and offer opportunities for observation and teaching for those preparing to teach in elementary and secondary schools.

Facilities in special education are made available in Fairchild Hall. This building was especially designed for education in areas involving the mentally retarded, the physically handicapped, the partially sighted and blind, the deaf

and hard of hearing, and those requiring speech correction. There are also facilities for psychological services, including testing and counseling.

Semester Plan and Summer Sessions

The University operates on the semester plan and provides, in addition to its fall and spring semesters, two summer sessions—one session of eight weeks and a post session of one, two, or three weeks. More than half of the persons in attendance are teachers who wish to continue their education during the summer. A student receives the same instruction in the summer as in the regular academic year.

During the post session, which follows the eight week summer session, a student may register for a one, two, or three-hour course. One-hour courses continue for one week, two-hour courses for two weeks, and three-hour courses for three weeks.

Student teaching and internship facilities are available during the eight-week summer session for those who are qualified.

A graduate student may register for eight semester hours during the eight-week summer session. Nine hours may be taken with permission of the Dean of the Graduate School.

The *Summer Bulletin* is issued annually and may be obtained by writing to the Director of the Summer Session. The bulletin contains information on the cost of attendance, the schedule of classes, and special features of the summer session, such as the Educational Conference, Educational Exhibit, short courses, and workshops.

Late Afternoon, Evening, and Saturday Classes

In addition to courses offered during the regular school day, late afternoon, evening, and Saturday classes are offered during the regular school year.

Selected graduate courses are offered each year in various extension centers. Not more than six semester hours of graduate extension work may be used in meeting requirements for a master's degree. Inquiries concerning extension courses should be directed to the Division of University Extension and Field Services.

Admission

Who May Apply

A student who has completed his work for a bachelor's degree, or who will do so within one semester, at a college or university that is accredited by the appropriate regional accrediting association, may apply for admission to the Graduate School. While conditional admission may be granted to a last semester senior, only those who have received a bachelor's degree will be permitted to register. Under certain conditions, however, seniors at this University may be permitted to take graduate courses. See page 10.

Applications and Credentials

All students who wish to take work for graduate credit must submit a formal application for admission to the Graduate School. This includes students who have graduated from, or are attending this University. It applies also to those who wish to take university extension courses for graduate credit.

All applicants, except those whose previous work is entirely at this University, must have the registrar of each college or university previously attended send two transcripts of credits to the Office of Admissions and Records. Transcripts in the possession of students, or mailed by them, are not acceptable for admission.

An application fee of \$15 (check or money order) must accompany the application for admission.

A prospective student at the master's level should file his application, and arrange for official transcripts to be sent, at least three weeks before the date of registration. Filing at a later date may delay registration. Under special circumstances the Dean of the Graduate School may approve applications tentatively, pending receipt of official transcripts or action by the committee on admissions. Conditional admission will not be granted for short courses or post session.

Applicants for admission to specialist and doctoral programs are encouraged to apply as early as possible. Two months should be considered as the minimum period between filing of applications and registration.

Each student who takes more than six semester hours during a regular semester is required to take a physical examination before entering the University. The examination must be made at the student's expense and not earlier than sixty days preceding registration. It must be made by a physician licensed to practice medicine in the state of residence. A report of the findings of a chest x-ray or skin test for tuberculosis, done within the year, must be a part of this examination.

Application blanks for admission to the Graduate School may be obtained from and are filed with the Director, Office of Admissions and Records.

Application to the Graduate School does not guarantee candidacy for a degree, nor does the University guarantee that a degree may be earned in any set period of time.

Re-admission of Former Students

Graduate students who wish to return to the University after a lapse of one semester or more should apply for re-admission through the Office of Admissions and Records at least seven days prior to the beginning of registration for the session which they wish to attend. A student who has attended another college or university during his absence from the campus should request that institution to send a transcript of his work to the Office of Admissions and Records at this University.

Non-Degree Students

The University recognizes two types of students who are eligible to take graduate work for graduate credit. These are (a) students in degree programs and (b) non-degree students.

A student in a degree program follows a program that, if successfully completed, leads to a degree. A non-degree graduate student may take graduate courses, but he has not been approved to work toward a degree.

A non-degree student who later wishes to work toward a degree must make application for admission to a degree program in the Office of Admissions and

Records, 205 Hovey Hall. He must meet the regular entrance requirements for a degree program. In the meantime, there is no guarantee that courses taken while he is a non-degree student may be used in meeting the requirements for a degree.

Credits earned by a non-degree student are recorded and are available for transfer. But such credit may not be used in meeting the requirements for a degree at Illinois State University unless the student is regularly admitted to a degree program as noted above. If the student is admitted, he may then request that earlier work be considered in meeting requirements. In approving such a request the University will consider the quality of the work and the requirements of the curriculum in which the student is enrolled.

A non-degree student may register for courses for which he has the prerequisites, unless such registration is restricted by the Dean of the Graduate School.

Admission to Master's Programs

An applicant for a program leading to the master's degree is considered on the basis of his academic record and other criteria that may include examinations, interviews, and letters of recommendation. Tests for admission are described below.

An applicant with a superior academic record may be admitted directly to a degree program. An applicant who does not have a superior academic record may be required to give evidence of ability to succeed in graduate work by taking a special examination. An examination may also be given to indicate the student's proficiency in the use of the English language. In considering an applicant for any curriculum, there may be departmental requirements in addition to the general requirements of the University.

When an applicant is approved, the departmental adviser will indicate any courses that may be required to remove undergraduate deficiencies. The adviser also may specify certain graduate courses which will be required in addition to those listed in the catalog. The adviser will designate which, if any, of these courses may be used in meeting requirements for the degree.

A senior in good standing at this University may begin graduate work during the semester or summer session in which he completes the requirements for the bachelor's degree, if he otherwise qualifies for a degree program. During a semester he may not register for more graduate credit than the difference between fifteen hours and the number of hours required to complete the bachelor's degree. During the summer session he may not register for more graduate credit than the difference between eight hours and the number of hours required to complete the bachelor's degree. It is understood that graduate credit may be received for graduate courses only if requirements for the bachelor's degree are completed during the semester or summer session in which the student begins graduate work.

Admission to Specialist and Doctoral Programs

A student seeking admission to a specialist or doctoral degree program must present letters of recommendation, and must take qualifying examinations before being admitted to the program. He may be required to come to the campus for an interview. Tests for admission are described below.

Admission of an applicant to a specialist or doctoral program will take account of personal and professional qualifications as well as scholastic records and measurement of academic ability. Admission involves approval by the department as well as the Graduate School.

Tests Required for Admission

Master's Programs

All students seeking admission to master's degree programs must submit scores on the Aptitude Test of the Graduate Record Examination. They should also submit scores on the Advanced Test of the Graduate Record Examination if tests are available in their fields of study. Arrangements for taking the Graduate Record Examination can be made locally in the Test Service Office, 106 Moulton Hall, or by writing to Educational Testing Service at either Box 955, Princeton, New Jersey, 09540, or 1947 Center Street, Berkeley, California, 94704.

Specialist and Doctoral Programs

All students seeking admission to specialist and doctoral programs must submit scores on the Miller Analogies Test. Information concerning this examination may be obtained at testing centers, or by writing to the Psychological Corporation, 304 East 45th Street, New York, New York, 10017. Local students may take the test at ISU. An English usage test is also required. Arrangements for taking this test, either locally or at other testing centers, can be made by writing to the Graduate Office, 206 Hovey Hall, Illinois State University.

English Examination for Foreign Students

Illinois State University requires that students of foreign countries who seek admission to the Graduate School must take the "Test of English as a Foreign Language." Students wishing to take this examination should write to TOEFL, Educational Testing Service, Princeton, New Jersey. They will be informed as to testing centers nearest their homes and the dates on which the examination will be offered. Following completion of the examination they should ask the Educational Testing Service to send test scores to the Graduate School, Illinois State University.

Costs and Living Accommodations

The average cost for board, room, fees, and textbooks approximates \$1000 for the school year of 36 weeks. The fees below are subject to change.

Application Fee

An application fee of \$15 (check or money order) must accompany the application for admission.

Fees—Residents of Illinois*

The following fees are due on registration day. Students are not admitted to classes until fees have been paid.

*These fees are subject to change because action regarding them may be taken after the publication of this catalog.

Each Semester

For students who register for more than six semester hours:

Registration fee	\$60.00
Activity fee	16.00
*Student Insurance	8.50
University Union fee	11.00
Recreational activities fee	9.00

\$104.50

For students who register for six semester hours or less:

Registration fee per hour	\$ 9.00
No activity or University Union fees are charged.	

Eight-Week Summer Session

For students who register for more than three semester hours:

Registration fee	\$30.00
Activity fee	5.00
Student Insurance	3.00
University Union fee	5.00

\$43.00

For students who register for three semester hours or less:

Registration fee per hour	\$ 9.00
No activity or University Union fees are charged.	

Post Session and Short Sessions

Registration fee per hour	\$ 9.00
No activity or University Union fees are charged.	

Auditors

Fees for students who take courses as auditors, without credit:

Registration fee per hour	\$ 9.00
Maximum charge for a semester	60.00
Maximum charge for eight week summer session	30.00

Other Fees and Expenses

Graduation fee	15.00
Must be paid before published deadline.	
Late registration fee	10.00
Charged after scheduled registration period.	
Change in program fee	5.00
Charged during late registration period.	
Transcript of record	\$ 1.00
Charged after first two copies. Transcripts are issued only when all obligations have been met.	
Locker and towel fee for students in physical education courses (\$2.00 refunded when padlock is returned)	\$ 3.00

*This was the charge for the second semester, 1965-66. The rate is subject to change.

Graduate students are required to purchase their own textbooks.

The activity fee covers school activities and publications such as athletics, music programs, lectures, dramatic events, forensic events, class dues, the school paper, and the school annual.

The student insurance fee is for a student hospital-medical-surgical policy. This policy provides for all reasonable hospital expenses beginning with the first dollar and extending to a maximum of five hundred dollars, eighty per cent of any required surgeon's expense, and a major medical expense benefit of up to five thousand dollars for any one accident or period of sickness. Coverage for dependents may be obtained at an additional cost.

Each student may exercise an option to continue this during the summer months even though he may not be enrolled in the University.

The contract for furnishing this insurance is re-bid each year in order that this coverage may be provided at the lowest possible cost to the student.

Fees—Out-of-State Students

A student who is not a resident of Illinois pays the non-resident registration fee indicated below. All other fees are the same for non-residents.

A student under 21 years of age is considered a non-resident if his parents are not legal residents of Illinois. A student over 21 years of age is considered a non-resident if he is not a legal resident of Illinois at the time of registration. The Registrar is responsible for applying out-of-state fees.

Each Semester

Non-resident registration fee, more than six semester hours	\$145.00
Non-resident registration fee, six semester hours or less, per hour	23.00

Eight-Week Summer Session

Non-resident registration fee, more than three semester hours	\$ 72.50
Non-resident registration fee, three semester hours or less, per hour	23.00

Refunds

The registration and student insurance fees are refunded if a student withdraws from the University within ten days after the designated registration days of the semester. For the eight-week summer session, five days are allowed. University Union and activity fees are not refunded.

Specifically, no refund of fees will be made after June 27, 1966, for the eight-week summer session, September 26, 1966, for the first semester, and February 13, 1967, for the second semester.

For all short sessions and the post session, no refund of fees will be made after the first day of the session.

Living Accommodations

Inquiries regarding housing should be addressed to the Office of University Housing.

On Campus

Current room and board rates in residence halls for men and women are \$400 per semester. The University provides all room equipment and linen. Personal towels and blankets are provided by the student.

Married student housing facilities include 122 one-bedroom and 70 two-bedroom unfurnished apartments. One-bedroom units rent for \$65 per month, two-bedroom units, \$75 per month.

The University reserves the right to increase current rates if necessary at the beginning of any semester or summer term with the understanding that adequate notice will be given.

Off Campus

A rooming agreement, defining terms on which rooms are rented, is completed by all students and householders when space is reserved in University-approved off-campus homes. Lists of available houses are maintained in the Housing Office.

Rates for rooms vary from \$6.50 to \$10 per week. Meals secured in the community average \$20 per week. In some homes, cooking privileges are available.

Assistantships, Scholarships, Financial Aids, and Employment

Graduate assistantships are available in most of the departments of the University. In addition, assistantships are granted to men and women who serve as counselors in the University residence halls. In each instance, the graduate assistant is assigned responsibilities that contribute directly to his professional career.

Graduate assistants are exempt from payment of basic registration fees. They are required, however, to pay regular fees for student activities, student insurance, and the University Union.

Certain funds are available to students for graduate study in the field of Special Education. Recipients of graduate scholarships are selected on the basis of ability, personality, and professional interests. Information concerning these funds may be obtained from the Director of the Division of Special Education.

A limited number of tuition scholarships are available for foreign students.

The undergraduate catalog lists other scholarships and grants, some of which may be available to graduate students.

A general loan fund is available for graduate students, from which they may borrow at a low rate of interest a sum not to exceed \$150. Information concerning this fund may be obtained from the Office of Student Financial Aids.

For Veterans

Federal Benefits

Veterans or dependents of veterans who believe that they may be eligible for benefits should contact the Office of Veteran's Services, 110 Hovey Hall, either by mail prior to registration or in person soon after their arrival on campus.

State Military Scholarships

During any semester or summer session for which a veteran is not receiving federal benefits, he may avail himself of the provisions of the State Military Scholarship Law, provided he has an honorable discharge and was a resident of the state of Illinois at the time of his induction. These scholarships, which cover four years of registration and activity fees at the state supported universities only, are administered through the Office of Admissions and Records. Work under a State Military Scholarship must be completed in a six year period and a leave of absence must be requested if a scholarship is not used in consecutive semesters.

Part-time Employment

There are possibilities for part-time work for both men and women on the campus and in the community. Information may be received from the Financial Aids Office. Before entering into agreement with an employer, the student should consult the Financial Aids Office.

Student Life and Services

University Code of Student Life

The University assumes that all of its students will accept the responsibility of maintaining high standards of personal behavior. It further assumes that persons who are unsympathetic with such standards or unwilling to maintain them will not apply for admission. The student is held responsible for meeting these standards in the interest of his own personal development, the reputation and traditions of the University, and the welfare of the teaching profession.

Any student who fails to meet these requirements may be asked to withdraw immediately from the University.

Regulations and policies governing student conduct, housing, activities, and services are in the *Code of Student Life*, a handbook for all students. Students will be held responsible for familiarity with the University Code.

Health Service

The University Health Service is maintained by and is an integral part of Illinois State University. Because good health is an essential for success as a student or teacher, the Health Service is concerned directly with promotion of good physical and mental health among university students.

The Health Service, located in Fairchild Hall, includes an infirmary of twenty-four beds. In addition to services which are educational or preventive

in nature, the University physician is available for consultation during office hours regarding any health problem a student may have.

Each student who takes more than six semester hours during the semester is eligible for health service and is required to take a physical examination before entering the University. A student who takes more than 3 hours during the summer session also is eligible for health service but is not required to have a physical examination.

Psychological Counseling Service

The Psychological Counseling Service, located in Fairchild Hall, is available to University students who need help to avoid, correct, or alleviate maladjustments. In addition to providing counseling for students in the University, the Psychological Counseling Service provides training experiences for graduate students in the School-Psychologist curriculum.

Veterans Services

The Dean of Men is Director of Veterans Services. His office advises veterans on the provisions established by the federal government. In order that the proper forms may be executed, the veteran should write to the Director of Veterans Services before he registers.

If federal government financial aid is not available to the veteran, he may use the State Military Scholarship for his University fees. The veteran must have been a resident of Illinois when he entered military service. Evidence of such service must be presented to the Office of the Registrar.

For details regarding financial aid, see the section on Assistantships, Scholarships, Financial Aids, and Employment.

Cultural Opportunities

The University Union serves as a center for student activities, social and cultural. Lectures, entertainments, and art displays by faculty, students, and off-campus persons are presented in this building.

Undergraduate organizations on the campus present many programs of aesthetic, dramatic, and musical nature. There are also student forensic and athletic events.

The Entertainment Board brings to the campus each year the finest musicians, dancers, lecturers, and stage personalities. It also sponsors the Arts Theatre, featuring American and foreign film classics.

Civic organizations in Bloomington-Normal bring to this community musical and dramatic events.

Illinois Wesleyan University, located in Bloomington, presents cultural opportunities through its faculty, students, and off-campus personalities and groups.

Bureau of Appointments

The University maintains an active program of teacher placement and endeavors to keep constantly informed regarding the requirements of the schools of the state, and qualifications of candidates for positions in the schools.

The Bureau makes an effort to follow up graduates in order to assist them to positions of responsibility commensurate with their experience and success

in the field. All graduates who desire to secure professional and financial advancements should each year bring their credentials up to date in the Bureau of Appointments.

Through the Alumni Office, the Alumni Association, and thirty-three ISU Clubs, former students maintain contact with one another and the University. The Alumni Office keeps records of over 17,000 alumni on file and also serves as headquarters for alumni when they are on the campus. The *News Letter*, a publication of the Publicity Office, goes to all graduates three times a year.

The *Alumni Quarterly* is published four times each year and serves as the organ of the Alumni Association. The Association plans Founders' Day, class reunions, the annual alumni luncheon at commencement, and also many homecoming activities.

Degrees Offered

Field

*Art	M.A., M.S., M.S. in Ed., D. Ed.
*Biological Sciences	M.S., M.S. in Ed., Ph.D.
*Business Education	M.S., M.S. in Ed.
Educational Administration	M.A., M.S., M.S. in Ed., Spec. in Ed., Ed.D., Ph.D.
Elementary Education	M.A., M.S., M.S. in Ed.
*English	M.A., M.S., M.S. in Ed.
*French	M.A.
*Geography	M.S., M.S. in Ed.
Guidance	M.A., M.S., M.S. in Ed.
*Health & Physical Education	M.A., M.S., M.S. in Ed.
*History	M.A., M.S., M.S. in Ed.
*Home Economics	M.A., M.S., M.S. in Ed.
*Industrial Arts	M.S., M.S. in Ed.
*Latin	M.A., M.S. in Ed.
*Mathematics	M.A., M.S., M.S. in Ed.
*Music	M.S., M.S. in Ed.
*Physical Sciences	M.S., M.S. in Ed.
*Psychology	M.A., M.S.
School Psychology	M.A., M.S., M.S. in Ed.
*Social Sciences	M.A., M.S., M.S. in Ed.
*Spanish	M.A., M.S. in Ed.
Special Education	M.A., M.S., M.S. in Ed.
*Speech	M.S., M.S. in Ed.
Supervision	M.A., M.S., M.S. in Ed.

*In starred fields beginning in September, 1966, a student may elect to complete all of his work in his major field, or in closely related fields, under the direction of his adviser, or he may elect to enter college teaching or secondary teaching programs in which coursework in education or psychology is required as indicated below.

Master's Degrees

Credit Requirements

Master's degrees are offered in the fields indicated above. The minimum credit requirement for the degree is 32 semester hours. A student may elect one of two alternate plans for the degree. He may elect to do a thesis for which he may receive from four to six hours of credit in Independent Research 499, or he may elect to do 32 hours of coursework and write a comprehensive examination. He may not present credits in Independent Research 499 toward the degree unless his thesis is completed and approved for deposit in the University Library.

In the arts and science master's programs, including those for college and secondary teaching, a student must present, exclusive of Independent Research 499, at least 12 of the 32 hours in courses numbered at the 400 level, eight hours of which must be in his major field. A total of at least 16 semester hours of work must be in the major field (counting courses at the "300" and "400" levels). Remaining credits may be in such related fields as the student's adviser recommends, with the exception that in the teaching programs certain courses in education and psychology are specified.

A student should check carefully with his adviser the departmental requirements for master's degrees, since the above regulations indicate only minimums set by the Graduate School.

Special Degree Requirements

The Master of Science degree is usually awarded, except in the foreign languages, where the Master of Arts is awarded.

To qualify for the degree of **Master of Arts**, a student must have completed the stated requirements for a master's degree. He must have earned credit for a minimum of two years of a foreign language at the college level, or must demonstrate a reading knowledge of a foreign language. He also must have earned a minimum of 32 semester hours of credit in the humanities and social sciences, in addition to work in foreign language. These requirements in foreign language, humanities, and social sciences, may be met by satisfactory work at either the graduate or undergraduate level.

To qualify for the degree of **Master of Science in Education**, a student must have met the academic requirements for an Illinois teaching certificate, and must have earned a minimum of 24 semester hours of credit in education and psychology counting work taken at both the graduate and undergraduate levels, including a minimum of 8 semester hours of student teaching.

College Teaching Program Requirements

This program is designed for students desiring an internship experience and a basic seminar concerning the nature of college teaching. Students should register for Internship-Seminar in College Teaching 491, a course offered jointly by the Department of Education and the major department, and for Education 474, Seminar in College Teaching.

Students planning to teach in junior colleges requiring certification may need to take work beyond the 32 hours required for the degree. They should

obtain information as to the certification rules of the state in which they desire to teach, in order to include the necessary courses in their programs. The University offers several courses concerned with the junior or community college.

Secondary Teaching Program Requirements

The master's program for secondary teachers assumes that the student will have completed undergraduate work for certification. Students needing to meet certification requirements should plan to take such additional courses in education-psychology as will satisfy certification requirements in the states in which they desire to teach.

A student in the master's degree program for secondary teaching must take Education 475, Introduction to Research, or an approved alternate course offered by his own department. In addition he must select six hours from the following courses:

- Evaluation Techniques 487 (2)
- Seminar in Curriculum Theory 476 (3)
- Philosophy of Education 432 (3)
- Introduction to Guidance 360 (2)
- Readings in Educational Research 331 (1)
- Advanced Educational Psychology 437 (3)

The remainder of the coursework is taken in the student's major department. Students should note requirements listed with departmental offerings in this catalog and should consult advisers concerning their programs.

Note: Other master's degree programs for teachers or professional school service personnel are described under the following departmental or divisional headings in this catalog: Education and Psychology (guidance, psychology, psychological counseling, supervision and administration), Elementary Education, Special Education.

Teacher Certification Requirements

If a student plans to teach in the elementary schools, secondary schools, or public junior colleges, he must meet prescribed certification standards in Illinois. It is understood that University requirements need not be limited to meeting minimum certification standards.

Residence Requirements

A candidate for a master's degree must spend at least one full term in residence in order to qualify for the degree. A full term may be interpreted as one semester, with a class load of 8-15 hours, or a summer session with a class load of from 6-8 hours.

Time Limits

All graduate credit used in meeting requirements for the degree must be earned within a period of six years.

Transfer and Extension Credit

On approval of the Dean of the Graduate School, a student holding a bachelor's degree from this University may present a maximum of eight semester hours of graduate credit from another college or university for use in meeting the requirements of the master's degree. A student who holds a bachelor's degree from another college or university may present a maximum of six semester hours of graduate credit earned at another college or university. A student who plans to take courses elsewhere is advised to have such work approved in advance to make sure that the courses are appropriate for his curriculum at Illinois State University.

Not more than six semester hours of graduate extension work may be applied toward the master's degree. Correspondence courses are not accepted toward a master's degree. Forms for requesting transfer of credit may be obtained in the Graduate Office, 206 Hovey Hall.

Academic Advisers

Each student has an academic adviser to assist him in planning his work. This adviser should be consulted regarding the sequence of courses, the selection of electives, and the option of thesis or comprehensive written examination.

If a student follows a curriculum of specialization in a subject-matter field, the head of the department concerned is his academic adviser unless another faculty member has been appointed by the head of the department. This plan applies to all secondary and college teaching curricula, also elementary education with departmental specialization. In other curricula, other academic advisers have been appointed.

An advisory committee is appointed for each student who writes a thesis. This committee is responsible for directing the thesis project, recommending the student for admission to candidacy for the degree, and conducting the final examination.

If a student chooses the option of a comprehensive written examination, his academic adviser has the responsibility of recommending him for admission to candidacy and conducting the final examination.

Program Approval Required

At registration, each student's program should carry the approval of his academic adviser. If a program does not have such approval there is no assurance that the courses can be used in meeting the requirements for the degree.

Admission to Candidacy

To be admitted to candidacy for the master's degree the student must file a Plan of Study with the Dean of the Graduate School. This is done on forms obtained in his departmental office. At the time of filing, all deficiencies must be removed and the candidate must meet the requirements of the University regarding scholarship (page 28). Normally the student applies for admission to candidacy when he has completed approximately half of his work toward the master's degree. He must do so before the beginning of the semester or summer session in which he expects to receive his degree. The Plan of Study must indicate whether the student has selected the comprehensive examination or the

thesis option. If the student is offering a thesis as part of his work for the degree, his thesis proposal (see below) must have been approved by the Dean of the Graduate School.

Thesis

A student electing the thesis option must register for at least four hours of 499, Independent Research for the Master's Thesis. He may do this after he has filed an approved Research Proposal. He may register for four hours in a single semester or session, or for at least two hours in separate semesters or session. No grade will be given for the course but credit will be entered on the student's record at the time his approved thesis is deposited in the University library. No credit for 499 may be offered for the master's degree by a student who does not complete a thesis.

A thesis is written under the direction of an advisory committee. The chairman of the advisory committee must be a member of the department representing the student's major field. This chairman is appointed by the head of the department or the academic adviser. The second member of the advisory committee is appointed by the Dean of the Graduate School, following a joint recommendation by the student and the chairman of the advisory committee. A student must be admitted to a degree program in the Graduate School before a thesis committee can be appointed.

The title, scope, and design of each proposed thesis must be approved by the Dean of the Graduate School. This approval must be received before a student may apply for admission to candidacy. In order to allow time for review, the student is required to file his **Proposal for Research** with the Dean of the Graduate School early in the semester preceding the one in which he expects to receive the master's degree. Forms for submitting the proposals are available in the Graduate Office.

There is no assumption of uniformity in thesis research. For example, a student may propose a creative project in art or music. In each instance, however, the completed project must meet approved standards of scholarship in the chosen field of study. In each instance there must be evidence of ability to think logically, to gather and organize material, to draw and defend conclusions, and to present the results of the foregoing procedures in a creditable manner.

Thesis Consultant

A thesis consultant approves all theses for the Graduate School before they are officially accepted. The student is urged to consult the thesis consultant of the Graduate School as soon as he has completed a preliminary draft of the first part of his thesis and has received approval of this draft by his thesis committee. At this time the thesis consultant will counsel the student regarding problems such as those related to format, footnotes, illustrations, and the use of language.

Before a thesis is deposited in the Library, it is the responsibility of the thesis consultant of the Graduate School to examine the materials and to make sure that the report is neatly and correctly typed; is free of technical errors in format, footnoting, and bibliography; is suitable for binding; and reflects credit upon the University and its graduate program. If the form of the thesis

is not thus approved, the student must make whatever corrections are necessary and submit the materials again.

A descriptive note or annotation of not more than thirty words and an abstract of not more than three hundred words must be approved by the advisory committee and must accompany the thesis when it is filed in the Library.

After approval by his committee members and the theses consultant for the Graduate School, the student must file two unbound examination (carbon) copies of his thesis in his departmental office, and a third copy in the Graduate Office one week (seven days) before he takes his oral examination. It is the student's responsibility to retrieve these examination copies shortly before his oral examination. His adviser has the responsibility of notifying members of the department and the Graduate School office that the copies have been made available for examination and he will also notify them of the time and place of the oral examination.

Following the examination the student must file the original copy and the first carbon copy of the approved thesis, with any corrections suggested by his orals committee, unbound, in the University library. To be eligible for graduation a student must deposit his thesis in the library before 5:00 p.m. on the third day preceding graduation.

A thesis manual may be obtained in the office of the Dean of the Graduate School, 206 Hovey Hall.

Examinations

An examination, oral, written, or both, must be taken by each student before he receives the master's degree. This examination covers the graduate work which the student is presenting for his degree. The time, place, and nature of the examination are determined by the student's advisory committee if he selects the thesis option. The comprehensive written examination is the joint responsibility of the department and the Graduate School.

Specialist in Education

Program Requirements

Admission

A student seeking admission to a program leading to the Specialist in Education degree must present letters of recommendation and must take qualifying examinations before being admitted to the program. He may be required to come to the campus for an interview.

Admission of an applicant to a specialist degree program will take account of personal and professional qualifications as well as scholastic records and measurement of academic ability. Admission involves approval by the department as well as the Graduate School.

While the specialist program is a complete program and is usually terminal, a person completing a specialist degree is not precluded from entering a doctoral program. He should not expect to be able to transfer all his specialist course work to a doctoral program, however, since some work appropriate to the one degree will probably not be appropriate to the other. Similarly a doctoral

candidate may not expect to abandon his program and accept a specialist degree as compensation for a partially fulfilled program.

Academic Advisers

The head of the department, with the approval of the Dean of the Graduate school, appoints an academic adviser for each student admitted to a specialist degree program. If the student is pursuing a minor field of study, as well as a major field, the adviser, in approving the student's program, should obtain the advice of the department representing the student's minor field. At the time of each registration, the academic adviser files copies of the student's program with the heads of departments concerned and with the Dean of the Graduate School.

Curriculum

A student selecting the specialist degree must select a major field of study, and a supporting program approved by his academic adviser, the Dean of the Graduate School, and the Department directly involved.

Transfer and Residence

A student seeking the specialist degree may petition to transfer, from another institution, not to exceed six semester hours of graduate credit beyond the master's degree. The Dean of the Graduate School must approve all transfer credit used in meeting the requirements for the specialist degree.

A student seeking the specialist degree must after receiving a master's degree, complete at this University the equivalent of at least one academic year of graduate work. This must include one semester in which he is in residence; or one summer in which he is in residence for eleven consecutive weeks. A student is considered to be in residence when he devotes a major part of his time to graduate study and research on the campus.

A student will not be considered in residence while he is employed full-time.

Extension courses may not be used in meeting requirements for the specialist degree.

Time Limitations

The specialist degree is not granted on the basis of a student having successfully completed a certain number of courses, but upon evidence of his scholarly attainment as demonstrated especially by examinations and competence in research.

Although course credit is not the primary basis for granting the specialist degree, a student is not eligible to take his final examination until the latter part of the session in which he is completing thirty semester hours of work beyond the master's degree. More than two semesters may be necessary to complete all requirements for the degree.

All work for the specialist degree must be completed within six calendar years after the student begins work beyond the master's level. If the student does not complete his work within this time, he may be required to take addi-

tional examinations, or additional course work, or both, in order to continue in the specialist program.

Admission to Candidacy

A student seeking the specialist degree may be admitted to candidacy after: (a) removal of any deficiencies assessed at admission, (b) approval of his proposal for research, and (c) approval by his academic adviser of a plan of study leading to the specialist degree.

Research

A student seeking the specialist degree is required to complete a research project that gives evidence of his scholarly attainment and capacity for independent investigation appropriate to the degree.

The Dean of the Graduate School appoints the student's research committee, which includes his academic adviser. The topic and research design must be approved by the Dean of the Graduate School and the department representing the student's major field. The entire committee shares the responsibility for the research project although the academic adviser may work more directly with the student.

Final Examination

The Dean of the Graduate School appoints a committee which is responsible for the final examination. This examination may be oral, written, or both. The committee includes the student's academic adviser, as well as other members of the graduate faculty.

Doctor of Philosophy and Doctor of Education

Program Requirements

Admission

A student seeking admission to a doctoral degree program must present letters of recommendation, and must take qualifying examinations before being admitted to the program. He may be required to come to the campus for an interview.

Admission of an applicant to a doctoral program will take account of personal and professional qualifications as well as scholastic records and measurement of academic ability. Admission involves approval by the department as well as the Graduate School.

Academic Adviser

The head of the department, with the approval of the Dean of the Graduate School, appoints an academic adviser for each student admitted to a doctoral program. This adviser shall be responsible for approving the student's program of courses with the advice of departments representing, when applicable, both major and minor fields. At the time of each registration, the

academic adviser files copies of the student's program with the heads of departments concerned and with the Dean of the Graduate School.

Required Courses and Fields

A doctoral student must select both a major and a minor field (or fields) of study. The selection of minor field (or fields) must have the approval of the Dean of the Graduate School and the department directly involved. A minor field may, under certain circumstances, be in the same department as a major field.

Residence

A doctoral student, after receiving a master's degree, must complete at least four semesters of resident graduate work, including at least two consecutive semesters in full time residence at this University. Work in summer sessions may not be used in meeting this requirement of two consecutive semesters. A student is considered to be in full time residence when he devotes a major portion of his time to graduate study and research on the campus.

A student will not be considered in residence while he is employed full-time.

Extension courses may not be used in meeting requirements for the doctor's degree.

Time Limitations

The doctor's degree is not granted on the basis of a student having successfully completed a certain number of courses, but upon evidence of his scholarly attainment as demonstrated especially by examinations and competence in research.

All work for the doctorate, including the dissertation, must be completed within eight calendar years after the student begins work beyond the master's level. If the student does not complete his work during this time, he may be required to take additional qualifying examinations, or additional course work, or both, in order to continue in the doctoral program.

Foreign Language and Other Requirements

The general requirement for the Ph.D. degree is a reading knowledge of two foreign languages chosen from French, German, Russian, or other approved languages. The student's choice of languages must be approved by his academic adviser and the Dean of the Graduate School.

By petition, the Ph.D. student may substitute a more advanced knowledge of one language for a dictionary reading knowledge of two. In each instance the Department of Foreign Languages has the responsibility of certifying that the language requirement has been met. A reading examination in a foreign language for an advanced degree will be given from an article or book in the candidate's field. The candidate may use a dictionary. Language examinations are given on the first Fridays in October and March.

Doctoral candidates, and especially the Ed. D. candidates who are not required to offer foreign languages as research tools, are expected to have

developed other competencies appropriate for doctoral candidates in their fields. These may involve proficiencies in such areas as statistics, measurement and evaluation, research techniques, and experience in field survey work or special course work.

As is the case with ability to use a foreign language, some research skills may be the product of undergraduate and early graduate work. The concern of the Graduate School is that the doctoral candidate be able to understand the research work of leading scholars in his field, that he master the processes which will enable him to do productive research himself, and that he be able to report his research findings clearly to others.

Preliminary Examination and Admission to Candidacy

A doctoral student may be admitted to candidacy after: (a) meeting the foreign language requirement or alternate approved program, (b) passing a comprehensive preliminary examination, and (c) receiving approval of the dissertation topic.

The comprehensive preliminary examination is written or written and oral. It covers both major and minor fields. It also is concerned with the student's professional competence and his ability to undertake independent research.

The Dean of the Graduate School appoints the examining committee which includes the student's academic adviser and a representative of his minor field (or fields).

Dissertation for the Ph.D. and Ed.D.

The Dean of the Graduate School appoints a dissertation committee of not less than three members which includes the student's academic adviser. The topic of the dissertation must be approved by the Dean of the Graduate School and the department representing the student's major field. The entire committee shares responsibility for the dissertation although the academic adviser may work more directly with the student.

The dissertation for the Ph.D. must involve independent research and an original contribution to knowledge. While the dissertation for the Ed.D. may meet the above requirements it is customary to allow greater flexibility in the Ed. D. dissertation, so that it may, for instance, involve the application of existing knowledge or theory to a practical educational problem or situation.

The dissertation must be approved by the dissertation committee, as well as the final examination committee appointed by the Dean of the Graduate School. This committee represents the University at large.

The student is not required to have the dissertation printed. He will be required to pay the expense of microfilming for distribution by University Microfilms. The University may publish part or all of the dissertation.

Final Examination

The Dean of the Graduate School appoints a committee which is responsible for the final examination. This examination may be oral, written, or both, and is concerned with more than the dissertation topic. The committee includes the student's academic adviser, as well as other members of the graduate faculty.

Academic Procedures and Regulations

The Grading System

Grades

The grades with their value in grade points are as follows:

A	(Passing)	4 grade points per semester hour
B	(Passing)	3 grade points per semester hour
C	(Passing)	2 grade points per semester hour
D	(Passing)	1 grade point per semester hour
F, WF	(Failing)	No grade points per semester hour
I	(Incomplete)	No grade points per semester hour
WX, WP	(Withdrawal)	No grade points per semester hour

A, B, C, or D will be recorded for work which has been given a passing grade.

F will be given to (1) Students who withdraw from a course at any time without official permission; (2) Students who are in a course all semester but who fail to make a passing mark.

Withdrawals

WX, WP, or WF will be given to students who have received official permission to withdraw from a course. WX is given if the student withdraws before the quality of the work can be determined; WP, if the student is passing at the time of withdrawal; and WF, if failing. Official permission to withdraw from a course will not be given after the fourteenth week of a semester or the sixth week of a summer session. Final dates for withdrawal for the 1966-1967 school year are December 16, 1966, for the first semester; May 12, 1967, for the second semester; and July 28 for the 1967 summer session. In a case involving prolonged illness, a student may be permitted to withdraw at a later date if such withdrawal is recommended as a health measure by the University Health Service.

Official permission to withdraw from a course or from the University may be granted by the Graduate Dean. For withdrawals students should report to the Registration Office, 106 B, Hovey Hall. After the period during which program changes are made, a student must have a conference with the instructor of any course from which he is planning to withdraw. This conference must be held prior to the granting of official permission to withdraw from a course. All students who wish to withdraw from the University should first confer with the Dean of Women or the Dean of Men. In case of accident or illness which would make withdrawal in the regular way impossible, a letter sent to the Graduate Dean explaining the situation will be sufficient, providing textbooks and library card are returned.

If a student withdraws from a class or from the University during the semester without arranging officially with the Registration Office his withdrawal will be considered unofficial after three weeks of absence or by the close of the semester (whichever is the shorter period of time), unless justifiable reason for extension of time is accepted by the Dean of the Graduate School.

Incompletes

An I (incomplete) will be given a student who is doing passing work but who, because of illness or other justifiable reasons, finds it impossible to complete the work by the end of the semester or session. The student must be in class to within three weeks of the close of the semester or one week of the summer session, and the quality of his work must be such that he can complete it through special assignments and examinations. Incompletes should be cleared during the next semester or session a student is in school and must be cleared before one year has elapsed.

Academic Load

During the semester, the maximum academic load for graduate students is fifteen semester hours.

In the eight-week summer session, the maximum load is eight semester hours. With permission of the Dean of the Graduate School, nine semester hours may be taken.

A fully employed person may not enroll for more than one course, nor for a total of more than four hours, during any semester.

If a student holds an assistantship, his academic class load is adjusted accordingly.

Scholarship and Other Requirements

A student must have at least a B average at this University in order to be admitted to candidacy for a degree. For graduation a B average is also required. The Dean, in consultation with the student's adviser, may ask a student whose work is unsatisfactory to discontinue graduate work or grant him a probationary period in which to bring his work up to required standards. A student who fails to bring his total record up to a B average during the probationary period will not be permitted to register for further graduate work.

Transfer credit must carry a grade of B or better if it is to be used in meeting requirements for a degree. Courses completed at this University with grades below C may not count toward a degree, but these grades are counted in computing the average. If a graduate student repeats a course, both grades are counted in computing the grade-point average.

All grades of I (incomplete) must be removed six weeks before the June commencement and two weeks before the August commencement on courses that are to count toward graduation.

The last course or courses before graduation must be completed with this University.

It is the student's responsibility to make a formal request for the transfer of any credit which he proposes to use in meeting requirements at this University.

The Council may deny admission to the University, or registration at any time, or admission to candidacy for the degree, upon the basis of unsatisfactory scholarship, or what in their judgment is unfitness for teaching on physical, moral, mental, or emotional grounds.

Auditor

A student may register as auditor, attending class without participation and without credit. Registration must have the approval of the instructor. Registration as an auditor is performed separately through the Office of the Registrar. The auditor fee is indicated in the section on cost. Students who are registered for seven or more hours for credit may audit courses free of charge.

Graduation

A student must apply for graduation in the Office of Admissions and Records 205 Hovey Hall, before the deadlines specified for each session in the calendar on page 3. At the time application is made, the graduation fee of \$15 must be paid.

Commencement

Degrees are conferred after the close of each semester, after the end of the summer session, and at the close of the post-session. Commencement is held only twice each year, in June and in August. Presence at commencement is required for students who graduate at these times, unless the student receives permission from the Dean of the Graduate School to receive his diploma by mail. Since no commencement is held at the end of either the post-session or the fall semester, diplomas are mailed to students who complete their work in these sessions.

Departments and Course Offerings

SEMESTER PLAN

The University operates on the semester plan. The value of courses, is therefore, in terms of semester hours. A semester hour is assigned for a fifty-minute period of lecture or discussion for a semester of 18 weeks. For laboratory two fifty-minute periods are necessary for a semester hour.

COURSE NUMBERING SYSTEM

This **Graduate Catalog** contains courses numbered 300 to 499.

300-399 Advanced undergraduate and graduate courses. Open to juniors, seniors, and graduate students.

400-499 Graduate courses.

TEACHING STAFF

The members of the teaching staff of each department are listed in the departmental sections which follow. The entire faculty for the Graduate School is shown in a section after **Departments and Course Offerings**.

ANTHROPOLOGY

(See Social Sciences)

ART

TEACHING STAFF

Head of the Department: F. Louis Hoover. Office: Centennial Building, West 203.

Professors: F. Louis Hoover, Ruth M. Freyberger, Stanley G. Wold

Associate Professors: Perry N. Ragouzis, William R. Stewart

Assistant Professors: Lillian Dochterman, Gordon L. Kensler, Richard A. Salome

Note: Instructors of certain studio courses are appointed on a yearly basis by the Dean of the Graduate School.

The department offers work leading to the following degrees: M.A., M.S., M.S. in Ed., and D. Ed. University requirements for master's degrees are described on pages 18-22. Those for the doctorate are described on pages 24-26.

The master's program offers advanced work in the teaching of art; the history, philosophy and psychology of art; and studio practice. The studio areas include ceramics, jewelry, painting, printmaking, sculpture and weaving.

The doctoral program has as its major purpose the preparation of college and university teachers of art and art education, and the preparation of supervisors and directors of art in public schools.

The department reserves the right to keep examples of original work produced by graduate students for its permanent collection of student art work.

321 *Philosophy of Art Education* 3 sem. hrs.

The role of art in society and the historic development of art education in public schools. Emphasis upon the development of a personal philosophy of the role of art in the democratic society.

324 *Advanced Jewelry and Silversmithing* 2-6 sem. hrs.

Special problems in jewelry and silversmithing. May be repeated. Prerequisite: Art 224.

327 *Advanced Ceramics* 2-6 sem. hrs.

Special problems in ceramics. May be repeated. Prerequisite: Art 227.

331 *Advanced Drawing* 1-3 sem. hrs.

Special problems in drawing. May be repeated. Prerequisite: Art 114.

332 *Advanced Sculpture* 2-6 sem. hrs.

Special problems in sculpture. May be repeated. Prerequisite: Art 232.

340 *Advanced Weaving* 2-6 sem. hrs.

Special problems in weaving. May be repeated. Prerequisite: Art 240.

345 *Advanced Graphics* 2-6 sem. hrs.

Special problems in graphic arts. May be repeated. Prerequisite: Art 245.

351 *Special Projects in Art* 2-6 sem. hrs.

Special projects in art or art education chosen by the student for special investigation with the approval of the instructor. A student may enroll in this course for credit more than once if the material covered is not duplicated.

361 *Advanced Painting* 2-6 sem. hrs.

Special problems in painting. May be repeated. Prerequisite: Art 262.

370 *Contemporary Art* 2 sem. hrs.

Development of modern movements in painting, sculpture, architecture, and industrial design in Europe and America.

375 *Renaissance Art* 3 sem. hrs.

General influence determining the art product in Italy, Germany, Holland, England, and Flanders; related arts. Sources and readings for research. Chronological survey of artistic evidence in architecture, sculpture, painting, and the minor arts.

381 *Art in the United States* 3 sem. hrs.

A survey of the development of painting, sculpture, industrial design, and architecture in the United States with an emphasis upon twentieth-century trends.

401 *Current Practices in Art Education* 2 sem. hrs.

Development of a philosophy of art education. Basic readings in the field of art education, including city and state courses of study. Not open to art majors.

402 *Studies in Art Education* 2 sem. hrs.

Problems in art education from the point of view of research and experimentation. Development of instructional methods and materials, and means of testing their validity.

403 *Organization of Public School Art Programs* 2 sem. hrs.

Problems relating to the development and administration of total public school art programs in communities of different sizes.

411 *Art in Elementary Schools* 3 sem. hrs.

Art program from kindergarten through the sixth grade: content, methods, and teaching materials. The role of art in the total curriculum.

412 *Art in Secondary Schools* 3 sem. hrs.

The art program at the junior, senior high, and junior college levels: content, methods, and teaching materials. The role of art in the total curriculum.

421 *Problems in Teaching College Art* 2-5 sem. hrs.

Opportunity for observation, participation, and teaching at the college level. Assignments are made with the approval of the department head at least two months prior to registration.

422 *Teacher Education Programs in Art* 2 sem. hrs.

Planning college and university art programs for the preparation of teachers.

425 *Psychology of Art* 3 sem. hrs.

A survey of philosophical and psychological studies of the creative individual; art appreciation and production, and the art product; consideration of social and educational implications.

444 *Problems in Studio Work* 2-6 sem. hrs.

Individual study and direction in creative activity. May be repeated.

451 *Special Projects in Art* 2-6 sem. hrs.

Special project in art or art education chosen by the student for investigation with the approval of the instructor. A student may enroll in this course for credit more than once if the material covered is not duplicated.

471 *Primitive Art* 3 sem. hrs.

Art of preliterate cultures in several parts of the world and the culture traits, complexes, and institutions associated with them.

482 *Contemporary Painting* 3 sem. hrs.

Backgrounds for twentieth-century painting. Major movements in modern painting: Impressionism, Post-Impressionism, Dada, Surrealism, social consciousness, Regionalism, Abstract Expressionism. Painting Today.

483 *Contemporary Architecture* 3 sem. hrs.

Backgrounds for twentieth-century architecture. New materials and techniques. The European group. Oud, Le Corbusier, Gropius, and van der Rohe. The Americans: Richardson, Sullivan, and Wright. The International Style. The American home today.

491 *Internship-Seminar in College Teaching in Art* 3 sem. hrs.

Credit for the course is given in Education (see Education 491).

497 *Research Seminar* 1-6 sem. hrs.

Introduction to bibliography, methods of scholarly research and the critical evaluation of research in the field. Must be taken by first year graduate students unless the department requires Education 475. May be repeated by more advanced students who desire direction and constructive criticism as they pursue research problems.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

BIOLOGICAL SCIENCES

TEACHING STAFF

Head of the Department: R. Omar Rilett. Office: Science Building 206.

Professors: Walter H. Brown, Eleanor Dilks, Dorothy E. Fensholt, Nina E. Gray, J. Louis Martens, Loren W. Mentzer, Andreas A. Paloumpis, Ione Rhymer, Donald T. Ries, Robert D. Weigel, Edwin R. Willis.

Associate Professors: Dale E. Birkenholz, Herman E. Brockman, Robert M. Chasson, Kenneth L. Fitch, John L. Frehn, Clarence Hardiman, Howard Hetzel, J. Alan Holman, Anthony E. Liberta, Orrin J. Mizer, Edward L. Mockford, Mathew Nadakavukaren, James E. Perham, James N. Tone.

Assistant Professors: Mohammed Mahmood Sayeed, Jack A. Ward.

Research Associate: William C. Starrett*

**Illinois Natural History Survey*

The department offers work leading to the following degrees: M.S., M.S. in Ed., and Ph.D. Master's degree students are required to take the following courses: 300 and 301—Readings in the Biological Sciences, and 304—Seminar in Biology. University requirements for the master's degree are described on pages 18-22. The Ph.D. is offered in botany, micro-biology, and zoology. University requirements for the doctoral program are described on pages 24-26.

GENERAL COURSES

300 and 301 *Readings in the Biological Sciences* Each 1 sem. hr.
Required of all graduate students in the biological sciences.

303 *Natural Science for Elementary Teachers* 3 sem. hrs.
Present-day developments in science in relation to elementary school situations. Consideration of the content, activities, and approach involved in the teaching of an integrated science program related to the life of the individual for various grade levels. Lecture and laboratory.

490 *Research in the Biological Sciences*
Variable credit. Research involving the gathering of data to form the basis for the thesis required for the Ph.D. Approval of the head of the department is required.

491 *Internship-Seminar in College Teaching in the Biological Sciences* 3 sem. hrs.

Credit for the course is given in Education (see Education 491).

497 *Research Seminar* 1-6 sem. hrs.
Introduction to bibliography, methods of scholarly research and critical evaluation of research. Must be taken by first year graduate students in the secondary curriculum unless the department requires Education 475. May be repeated by more advanced students who desire direction and constructive criticism as they pursue a special research problem.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.
A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

BIOLOGY

302 *History of Biology* 3 sem. hrs.
An intensive survey of great personalities of biology emphasizing their contributions to the advancement of science. Lecture.

304 *Seminar in Biology* 1 sem. hr.
Participation each semester by all senior and graduate students in the department is recommended. Credit is given only for the first semester of participation. Staff, guest speakers, and graduate students will discuss their research at these seminars.

305 *Special Problems in Biology* 1-3 sem. hrs.
Special work in a variety of fields including biometry, mycology, algae, herpetology, ichthyology, mammalogy, radiation biology, genetics, ecology, and microtechnique. Assignments depend on student's interest and background. Projects must be approved by the instructor and the Head of the Department.

306 *Regional and Area Studies* 1-9 sem. hrs.

An intensive study of particular lands, environments, cultures, and peoples. May be given in cooperation with other departments, on or off campus. The areas to be studied, participating departments, and credit hours available in the several departments, will be announced each time the course is offered.

318 *Laboratory Techniques* 2 sem. hrs.

Procedures for the preparation of biological materials of all kinds. Preparation of microscope slides, embedding in plastic, plastic injections, nerve preparations, and the building of models are undertaken. Lecture and laboratory.

319 *Genetics* 4 sem. hrs.

Mechanics of inheritance and evolution in the plant and animal kingdoms. Prerequisite: 12 semester hours of courses with laboratory in biological sciences.

342 *Introduction to Biochemistry* 4 sem. hrs.

Chemistry of the proteins, carbohydrates, nucleic acids, vitamins, enzymes; their degradation, formation, and associated energy changes in biological processes. Four class meetings per week including one three-hour laboratory period. Prerequisite: Biological Sciences 231 and 113 or 240.

401 *General Ecology* 4 sem. hrs.

Influence of environmental factors upon plant and animal associations. Analysis of representative communities. Field and laboratory research techniques. Lectures, laboratory, and field trips.

402 *Aquatic Biology* 4 sem. hrs.

Ecological study of streams, ponds, and lakes, and the interrelationships of the plants and animals in these habitats. Field trips to varied aquatic habitats and aquatic field stations in the area will be required as part of the course.

404 *Seminar in the Teaching of Biology* 1 sem. hr.

Techniques and aids for successful biology teaching in secondary schools and colleges. Students will be required to participate in the activities of the seminar by giving reports, preparing demonstration materials, or illustrating special teaching materials.

416 *Cellular Physiology* 5 sem. hrs.

Morphology, physiology, and biochemistry of the cell with emphasis on the functional aspects of submicroscopic structure and the principles of cytochemistry. Topics considered include: energy conversions, temperature, cell environment, pH, intermediary metabolism, physiochemical organization of protoplasm, active transport, enzyme properties, radiation effects, isotopes, bioelectric phenomena, and methods of ultrastructure investigation. Lecture and laboratory.

417 *Cytology and Cytogenetics* 4 sem. hrs.

The structure, behavior, and evolution of cells and chromosomes. Lecture and laboratory. Prerequisite: Genetics 319 or consent of instructor.

418 *Electron Microscopy* 4 sem. hrs.

Preparation, staining, embedding and sectioning procedures, negative staining and vacuum evaporation techniques, preparation of specimen support membranes, photographic methods, use of the electron microscope and introduction to electron optics. Prerequisite: Permission of instructor.

419 *Advanced Genetics* 4 sem. hrs.

Topics of major interest in modern and classical genetics. Lecture.

BOTANY

320 *Plant Pathology* 4 sem. hrs.

Taxonomy and life cycles of fungi causing plant diseases. A study of recent literature in phytopathology is included. Lecture and laboratory.

326 *Plant Physiology* 4 sem. hrs.

Chemical and Physical aspects of the life processes in plants. Lecture and laboratory. Prerequisite: Biological Sciences 216 and 217, or consent of instructor.

331 *Taxonomy of Vascular Plants* 4 sem. hrs.

Plant classification with emphasis on the evolution of higher plants. Lecture and laboratory.

332 *Taxonomy of Non-Vascular Plants* 4 sem. hrs.

Plant classification with emphasis on the evolution of lower plants. Lecture and laboratory.

333 *Comparative Plant Morphology* 4 sem. hrs.

Survey of the plant kingdom from the standpoint of comparative morphology as illustrated by selected plant types, with particular emphasis on evolutionary tendencies. Lecture and laboratory.

334 *Introductory Mycology* 3 sem. hrs.

Morphology, taxonomy, and evolution of the fungi. Lecture and laboratory.

433 *Plant Anatomy and Histology* 3 sem. hrs.

Development and function of organs, tissues, and cells of vascular plants. Examination of recent experimental studies of external and internal structure of vascular plants. Lecture and laboratory.

464 *Advanced Mycology* 3 sem. hrs.

Isolation, culturing, and physiology of the fungi. Lecture and laboratory.

HEALTH

340 *Administration of School Health* 3 sem. hrs.

Administration and organization of school health programs. Lecture.

440 *Epidemiology* 3 sem. hrs.

Principles of the epidemiologic method applicable to infectious and non-infectious disease. Etiological agents, pathogenesis, host response, control procedures, and diagnostic survey and laboratory methods of infectious disease. Selective illustrations from deficiency diseases. Prerequisite: Bacteriology 260. Lecture.

MICROBIOLOGY

360 *School and Community Sanitation* 4 sem. hrs.

Microbiology as applied to community water supply and waste disposal, stream pollution, swimming pools, milk and milk products, food and its distribution, and air pollution. Laboratory includes determination of biochemical oxygen demand, color and spectrophotometric determination of residual chlorine, as well as field observation of typical water and sewage installations. Lecture and laboratory.

365 *Phycology* 4 sem. hrs.

Taxonomy, morphology, anatomy, and physiology of the algae with special emphasis on species common to Illinois.

466 *Microbial Physiology* 5 sem. hrs.

Fundamental concepts and techniques of bacteriology. Anatomical, nutritional, and metabolic properties. Microbiological assays. Prerequisite: Bacteriology 261 and chemistry through quantitative analysis and organic. Lecture and laboratory.

467 *Microbial Genetics* 5 sem. hrs.

Heredity in microorganisms, virulence as a physiological problem, and the viruses as a branch of microbiology. Prerequisite: Bacteriology 261 and chemistry through quantitative analysis and organic. Lecture and laboratory.

ZOOLOGY

381 *Applied Human Anatomy* 4 sem. hrs.

For those preparing to teach special classes of physically-handicapped children. The educational implications are stressed. Lecture and laboratory. Prerequisite: Biological Sciences 182.

382 *The Eye—A Laboratory and Clinical Study* 2 sem. hrs.

Anatomy and physiology of the eye. Observations and demonstrations in the school and clinic for the detection and care of eye disorders. Lecture and laboratory. Prerequisite: Biological Sciences 182.

383 *Parasitology* 4 sem. hrs.

Morphology, life histories, host parasite relationships and methods of control of arthropod, helminth and protozoan parasites of man, domestic and wild animals. Parasitological techniques and methods of laboratory diagnosis will be included. Lecture and laboratory.

385 *Physical Defects—Survey and Rehabilitation* 3 sem. hrs.

Physical defects of handicapped children and procedures used in their rehabilitation. For those preparing to teach special classes of physically handicapped children. Includes special services, equipment, and activities used in the rehabilitation programs. Lecture and laboratory. Also offered as Health and Physical Education 385. Prerequisite: Biological Sciences 381.

391 *Entomology* 4 sem. hrs.

Anatomy, physiology, and embryology of insects. Lecture and laboratory.

392 *Embryology* 4 sem. hrs.

Introduction to organic structure and development. Lecture and laboratory. Prerequisite: Biological Sciences 192.

394 *Protozoology* 4 sem. hrs.

Morphology, physiology, reproduction and life cycles, heredity, classification, habitats, and ecology, methods of collection, cultivation, and cytological techniques of protozoa, as well as the history of protozoology. Lecture and laboratory.

395 *Biology of the Lower Vertebrates* 4 sem. hrs.

The biology of fishes, amphibians, and reptiles.

396 *Biology of the Higher Vertebrates* 4 sem. hrs.

Biological aspects of the birds and mammals.

481 *The Sensory Organs* 3 sem. hrs.

Anatomy and physiology of sense perception organs of the body, with special attention given to speech, hearing, and sight saving.

482 and 483 *Human Anatomy and Physiology* Each 3 sem. hrs.

Biological bases for those who need an understanding of the human body in the various professionalized educational fields. The laboratory work is based directly upon the human body.

484 *Human Development and Behavior—Its Biological Basis*
3 sem. hrs.

Basic cytology, genetics, developmental anatomy and physiology, endocrinology, neurology, and related nutrition for students in education and psychology, health education and special education. The demonstrations are based upon anatomical materials from the human as well as the animal body.

492 *Advanced Embryology* 4 sem. hrs.

Fetal physiology, organ formation, and differentiation of embryonic cells into adult types. Lecture and laboratory.

493 *Biophysics* 3 sem. hrs.

Introduction to techniques of scientific investigation in zoology. Lecture and laboratory.

BOTANY

(See Biological Sciences)

BUSINESS EDUCATION

TEACHING STAFF

Head of the Department: Lewis R. Toll. Office: Turner Hall 210-B.

Professors: Arnold Condon, Raymond W. Esworthy, Harold F. Koepke, Thomas B. Martin, H. Earle Reese

Associate Professor: Warren S. Perry

Assistant Professor: John H. Rich

The department offers work leading to the following degrees: M.S., M.S. in Ed. University requirements for the master's degree are described on pages 18-22.

311 *Fundamentals of Life and Health Insurance* 3 sem. hrs.

General consideration of personal and business risks. Principles of life and health insurance and their applications.

312 *Fundamentals of Property and Liability Insurance* 3 sem. hrs.

Principles of property insurance with fundamental application to individuals, risk in fire, marine, bond, and casualty areas.

330 *Governmental Accounting* 3 sem. hrs.

Procedures, accounts, and reports of governmental agencies; the solution of problems embracing the practical application of fund accounting and the interpretation of financial reports of various government units. Prerequisite: 5 semester hours of accounting.

331 *Cost Accounting* 3 sem. hrs.

Elements of production costs, including materials, labor, and overhead or burden; the job-cost, the process-cost, and the standard cost systems; the solution of problems embracing the practical application of costing methods, formulas, and standard costs. Prerequisite: 9 semester hours of accounting.

333 *Income Tax Procedure* 3 sem. hrs.

Federal income tax provisions affecting individuals and business enterprises, and problems involved in tax computations. Prerequisite: 6 semester hours of accounting.

356 *Business Finance* 3 sem. hrs.

Problems and methods of financing business, function of banking, business risks as an influence on financial management, and interpretation of the security markets. Prerequisite: Social Sciences 171 or Business Education 252.

357 *Retailing* 2 sem. hrs.

Organization and operation of retail stores and service establishments of various types with some consideration of the application of the content to distributive education and general business subjects of the high school. Whenever feasible, the local business community will be used as a laboratory for the observation and analysis of retailing practice. Prerequisite: Social Sciences 171 or Business Education 252.

360 *Business Data Processing* 3 sem. hrs.

Business data processing involving the fundamental characteristics of mechanical and electronic systems and their application to business. Prerequisite: 6 semester hours of accounting.

361 *Business Systems Analysis for Computer Programming*
3 sem. hrs.

Systems planning, coding, and programming for the digital computer as it is used in business for data processing. Includes instruction and laboratory work on the IBM 1620 Data Processing System, and some instruction on other types of computers. Symbolic languages will be used for the programming of common data processing applications such as: payroll, inventory control, expense analysis, and financial statements. Prerequisite: Business Education 360 or consent of department head.

400 *Seminar in Business Education* 2 sem. hrs.

Consideration of business education problems of greatest concern to the group and to the individual student by means of conferences and informal discussion.

402 *Administration and Supervision of Business Education*
2 sem. hrs.

Fundamental concepts and techniques needed by administrators, supervisors, department heads, and teachers of business education in planning and carrying out realistic programs of business education in junior and senior high schools and junior colleges.

404 *Occupational Guidance in Business Education* 2 sem. hrs.

Methods by which a secondary school teacher may assist students in getting the type of training adapted to their interests, abilities, and aptitudes as an aid to their making satisfactory adjustments in business occupations.

406 *Readings in Management* 2 sem. hrs.

Selected readings from the literature of general management, including recognized classics in the field and other significant contributions of both theoretical and technical nature. Prerequisite: 15 semester hours in accounting and/or business administration.

408 *Problems of Office Management* 3 sem. hrs.

Detecting, analyzing, and solving problems applicable to large or small offices. Principles of office organization, layout, and operation are discussed and applied to cases under consideration. Critical evaluation of office operations resulting from application of data processing systems. Individual and committee investigations are conducted, and selected office managers are called upon to serve as resource persons.

410 *Consumer Business Problems* 2 sem. hrs.

Application of business knowledge to the solution of practical problems of the consumer. Emphasis on class and individual problem solving in the areas of personal finance and investment involving a consideration of interacting economic forces and technical business operations.

412 *Legal Aspects of Business Decisions* 2 sem. hrs.

Brief consideration of legal reasoning as the developmental process of law, followed by a comprehensive presentation of how legal problems are resolved in the course of organization, operation and termination of business enterprises.

430 *Improvement of Instruction in Bookkeeping and General Business* 3 sem. hrs.

Bookkeeping subjects consisting of first- and second-year bookkeeping, personal record keeping, general clerical practice, and clerical office practice. General business subjects will consist primarily of general business training, business law, business arithmetic, commercial geography, and consumer education. The instructor will draw from his own experiences, from those of the group, from the writings of authorities in the field, and occasionally from the ideas of visiting lecturers and demonstrators. Prerequisite: teaching experience or student teaching.

432 *Auditing* 3 sem. hrs.

Ethics of the accounting profession; programs of audit of various accounts and application of auditing principles in verification of financial statements; internal control as related to audit techniques; preparation of working papers and reports; trends and developments in the accounting profession.

440 *Improvement of Instruction in Secretarial Subjects* 3 sem. hrs.

Secondary school subjects included are vocational typewriting, personal typewriting, shorthand, transcription, business English, and secretarial office practice. The instructor will draw from his own experiences, from those of the group, from the writings of authorities in the field, and occasionally from the ideas of visiting lecturers or demonstrators. Prerequisite: teaching experience or student teaching.

450 *Improvement of Instruction in Distributive Education*
3 sem. hrs.

Organization, administration, and supervision of programs of distributive education, with emphasis on the cooperative part-time programs. Methods, materials, and equipment in teaching salesmanship, retailing, and other courses of training for distributive occupations.

457 *Problems in Retail Store Management* 2 sem. hrs.

Investigation and critical discussion of problems frequently encountered in managing a retail store, with special attention given to the small store. Principles and procedures of store management developed as they relate to the cases chosen for analysis. Visits to stores and participation by selected store managers in group discussions are regular parts of the course.

460 *Personnel Management* 3 sem. hrs.

Organization and administration of the personnel program in business and governmental institutions. Principles and procedures relating to selection, placement, and training of employees, and to the maintenance of employee morale and efficiency. Administration of employee services, wage and salary programs, and negotiation with organized labor. Analysis of actual business cases.

470 *Purchasing Policies and Procedures* 3 sem. hrs.

Purchase of materials, supplies, and equipment as a major business function. Organization for purchasing, internal requisitioning, and stock control. Basic procurement principles, processes, and problems in industrial, governmental, and institutional organizations. Actual business cases analyzed.

491 *Internship-Seminar in College Teaching in Business Education*
3 sem. hrs.

Credit for this course is given in Education (see Education 491).

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

CHEMISTRY

(See Physical Sciences)

ECONOMICS

(See Social Sciences)

EDUCATION AND PSYCHOLOGY

TEACHING STAFF

Head of the Department: Frank N. Philpot. Office: Schroeder Hall 406

Professors: Eric Baber, E. Scott Blankenship, R. Elizabeth Brown, Rose B. Buehler, Claude M. Dillinger, Leo Eastman, Elwood Egelston, Walter Friedhoff, William Gnagey, Dean S. Hage, Henry Hermanowicz, Charles Hicklin, Benjamin Hubbard, Richard Hulet, Homer Knight, Cecilia J. Lauby, Elden A. Lichty, William R. Lueck, Stanley S. Marzolf, Robert H. Moore, Helen M. Nance, Stanley K. Norton, Harold R. Phelps, Frank N. Philpot, Donald M. Prince, John L. Reusser, Mary C. Serra, Herman R. Tiedeman.

Associate Professors: Leonard Brubaker, Jason Brunk, Elwood Campbell, Dorothy Carrington, Lessie Carlton, Valjean Cashen, Robert Crist, Lillian

Davies, S. Elizabeth Davis, George Drew, Charles Edwards, James Fisher, William Frinsko, John W. Gillis, Ivo P. Greif, Gertrude M. Hall, Robert Hogan, Gordon Hoke, Frank J. Holmes, Quinn Hrudka, W. Raymond James, John Kirchner, Clarence H. Kurth, Ronald Laymon, Elmer Lemke, Harry Little, David Livers, Normand Madore, George McCoy, Ralph A. Meyering, Murray L. Miller, Gary Ramseyer, Dent Rhodes, Kenneth Smith, Clayton Thomas, Morton D. Waimon, Betty Winford, William Zeller.

Assistant Professors: Patricia Chesebro, William Prigge, Richard Trumpe.

EDUCATION

Master's Programs

The department offers work leading to M.A., M.S., and M.S. in Ed. degrees in the following fields: Guidance and Counseling, Psychology, School Psychology, Supervision, and Educational Administration. Program requirements in these fields are as follows:

Guidance and Counseling

At least 20 semester hours in Education and Psychology are required, including Education 360, 434, 462, 475, and Psychology 331, 433, and 460. Additional courses are selected following recommendations of the adviser in this curriculum.

Supervision

At least 20 semester hours in Education and Psychology are required, including Education 475 and 476.

If emphasis is on supervision of instruction, Education 403, 477, 487, and 488 must be included. If specialization is in supervision of student teaching in elementary schools, Education 403 and 487 are required. If specialization is in supervision of student teaching in secondary schools, Education 360, 477, and 497 are required.

Additional courses are selected following recommendations of the adviser in this curriculum.

Students without teaching experience may not select this curriculum unless they have the consent of the Dean of the Graduate School.

Educational Administration

At least 20 semester hours of Education and Psychology are required, including Education 475, 476, 478, 479, and 481 and Social Sciences 465.

Additional courses are selected following recommendations of the adviser in this curriculum.

Students without teaching experience may not select this curriculum unless they have the consent of the Dean of the Graduate School.

Specialist and Doctoral Programs

The department offers work leading to the Specialist in Education degree and the D. Ed. and Ph.D. degrees in Educational Administration. These programs have as their major purpose the preparation of superintendents, principals, and other administrative personnel. Applicants for these programs must have at least two years of experience in education. University requirements for these degree programs are listed on pages 22-26.

Psychology courses and requirements are listed separately on pages 49-52.

301 *Laboratory Reading Methods* 3 sem. hrs.

Techniques of diagnosis and instruction for special cases of severe reading disability. Deals with physical, mental, and emotional maladjustments and teaching errors which may become casual factors in reading disabilities. Provides opportunity for preparation of instructional materials and for laboratory work with children having serious reading difficulties. Three double periods per week. Prerequisite: Education 103.

309 *Adult Education Programs* 3 sem. hrs.

Instruction, direction, and administration of public school adult education. The adult learner, his needs and characteristics; facilities, staff, supervision and administration of adult education programs; the relation of public school adult education programs to other education programs under the sponsorship and direction of the public schools.

331 *Readings in Educational Research* 1 sem. hr.

Study and evaluation of current research dealing with the student's major field of interest. Guidance is provided in doing library research on one or more topics of the student's choosing.

333 *The Junior High School* 2 sem. hrs.

Function of the junior high school; characteristics and needs of early adolescents; articulation with the elementary and high schools; traditional and core curriculums; organization, administration, and evaluation of programs for early adolescents.

334 *Public Relations for Education* 2 sem. hrs.

Study of basic methods and theories of public relations. Concentration on public relations in establishing and maintaining cooperation between the school and community. Special class projects include participation in a public relations conference, student investigations and reports in areas of interest, field trips, as well as lectures by guests representing communication media.

335 *History of Education* 3 sem. hrs.

Development of European and American educational systems and programs. Emphasis on the historical perspective of modern educational problems.

337 *Programed Learning* 3 sem. hrs.

Construction and evaluation of programed learning; critical analysis of learning theory as it relates to programed learning.

340 *Statistics I* 3 sem. hrs.

Basic statistics for those in education and psychology. Advanced study of measures of central tendency, dispersion, and standard scores. Correlation techniques and regression analysis will be studied as well as sampling theory, large and small sample statistics, and Chi square. Emphasis will be placed on the use and interpretation of these techniques.

345 *Special Classes for the Trainable* 2 sem. hrs.

Organization of classes, teaching methods, behavior and progress records, reports, and home-school-community relations.

346 *Education for the Mentally Retarded* 2 sem. hrs.

Study of objectives, curriculum content, units, methods, and organization of work in classes of mentally-retarded children.

347 *Education of the Neurologically Impaired* 2 sem. hrs.
(Formerly *Problems of the Brain Injured*)

Medical diagnosis, psychological evaluation, anatomy and physiology of the central nervous system, nature and needs of the neurologically impaired child relative to educational adjustments needed and procedures of classroom management of children with severe learning problems and/or perceptual dysfunction. Relationship to other therapies. Observation and planned participation on a limited basis.

348 *Education of Gifted Children* 2 sem. hrs.

The meaning of giftedness, characteristics and methods of identification of gifted children, ways of providing for gifted in the school program, and guidance of gifted. For teachers, administrators, and personnel workers.

349 *Education of the Physically Handicapped* 2 sem. hrs.

Types of educational settings; interpretation and preparation of records; educational planning and curriculum development; psychological problems; physical aspects of the classroom; relationships with the home; vocational planning. For teachers of the orthopedically handicapped and children with special health problems. Prerequisite: Applied Human Anatomy 381, or equivalent.

350 *Education of the Partially Seeing* 2 sem. hrs.

Selection and placement of pupils; organization of the program; methods of sight conservation; special equipment; case records; observation in clinic.

351 *Education of the Blind* 3 sem. hrs.

Nature and needs of the blind. Interpretation and evaluation of medical, social, psychological, and educational records and reports. Types of educational programs. Methods and materials for blind children of school age.

352 *Braille Reading and Writing I* 2 sem. hrs.

Designed to develop mastery of braille literary code. Use of the braille writer and other devices for writing. Proficiency in production of braille, ink printing and proofreading.

353 *Education of the Deaf* 2 sem. hrs.

History of the education of the deaf and evaluation of the deaf in the community from social, economic, and political viewpoints—past and present. Philosophy and programs relating to the deaf and hard of hearing. An overview of research studies, guidance programs, and vocational placement of the deaf in our society.

354 *Speech for the Deaf* 3 sem. hrs.

The development of oral communication in hearing children compared to deaf children. Methods of developing speech in the pre-school and school age child using the visual, auditory, kinesthetic, and tactile approaches. Observations and participation in classes for the deaf. Prerequisite: Education 353.

355 *Language and School Subjects for the Deaf* 3 sem. hrs.

Principles and techniques of teaching language to pre-school and school age deaf child. Leading systems of teaching language to the deaf. Methods of adapting the teaching of school subjects to the deaf. Prerequisite: Education 353.

356 *Braille Reading and Writing II* 2 sem. hrs.

Designed to develop mastery of the braille mathematics code and the preparation of braille materials. Procedures for the use and teaching of braille. Prerequisite: Education 352.

357 *Practicum in Clinical Teaching* 3 sem. hrs.

Techniques used in diagnosing learning disabilities and methods by which corrective measures can be applied. Laboratory experience with maladjusted pupils is provided.

358 *Education of the Socially and Emotionally Disturbed*
2 sem. hrs.

Educational facilities, educational techniques and curriculum planning for maladjusted children.

360 *Introduction to Guidance* 2 sem. hrs.

Backgrounds, philosophy, and services in school guidance programs. Examination of the appraisal, informational, and counseling services. Emphasizes the role of the classroom teacher as well as the organization of guidance activities.

365 *Production of Instructional Materials* 3 sem. hrs.

Production of a variety of projected and non-projected materials for classroom use. Planning, evaluating, and organizing audiovisual presentations. Fundamental skills of preservation, compilation, adaptation, lettering, enlargement, reduction, duplication and production of audio materials will be demonstrated and laboratory practice will be provided. Prerequisite: Education 240.

399 *Student Teaching* 1-10 sem. hrs.

Directing the learning of pupils; participation in school and community activities; assuming full responsibility for a group of learners under the supervision of an expert teacher. Assignments are made on the basis of the student's area of specialization. High School Student Teaching assignments include work in special methods in the subjects taught. Prerequisite: 1. Education 216 for high school student teaching or one of Education 202, 203, or 204 for student teaching in the elementary school, junior high school, and special education. 2. Satisfactory preparation in the area of specialization. 3. Approval of the Director of Professional Laboratory Experiences. 4. One semester of residence, except in Special Education for which eight semester hours of residence work is required. Further information may be obtained from the office of the Director of Professional Laboratory Experiences.

401 *Analysis and Correction of Reading Disability* 3 sem. hrs.

Standardized and informal tests, analysis of test results, and differentiated reading programs based on test findings. Opportunities are provided for administering informal and standardized instruments designed to determine the extent of retardation and the type of reading disability. Practice is given in analyzing test findings and in recommending psychological and pedagogical procedures that will provide for the specific needs of subjects with reading difficulties. Prerequisite: Education 103 and 301 or teaching experience.

402 *Recent Research in Reading* 3 sem. hrs.

Analysis of recent research in reading at the elementary, secondary, and college levels together with its implications in the areas of modified practices in the teaching of reading, materials of instruction, and teacher preparation.

403 *Guiding Learning in the Elementary School* 3 sem. hrs.

The role of the classroom teacher in effective learning practices in the changing elementary school. Organizing the school for effective living and learning; effective approaches to learning in the various curriculum areas in order to care for individual differences among children in the classroom.

430 *Workshop in Education* 2-6 sem. hrs.

For experienced professional workers in the field of education. Emphasis given to serving superintendents, principals, supervisors, and teachers who are presently responsible for some aspect of curriculum study and/or program improvement in their schools. Primary concern with analysis and solution of practical and on-the-job educational problems. Procedure: exact statement of problems for study; critical examination of the literature on research and existing practice in the problem to be followed by reports, discussions, and conclusions. Prerequisite: teaching experience.

431 *Individualized Professional Experience* 2 or 3 sem. hrs.

Provides a wide variety of experiences to meet the individual needs of graduate students by working with elementary and high school students, parents, staff members, and school and community groups. Includes other professional and social experiences adapted to the needs of the individual graduate student.

432 *Philosophy of Education* 3 sem. hrs.

Social forces and schools of philosophical thought which have contributed to education and which are influencing current educational practices. To help the student achieve a functional educational philosophy applicable in his teaching situations.

433 *The Audiovisual Directorship* 3 sem. hrs.

Principles of and practices in organizing and managing an audiovisual program in the individual school building and school system. Considers such problems as audiovisual services, facilities, finance, personnel, public relations and evaluation standards for all aspects of the program. Prerequisite: Education 240 or permission of the instructor.

445 *Curriculum Development for the Mentally Retarded* 3 sem. hrs.

Designed to aid students in the development of curriculum and methods suited to their particular problems with the mentally retarded. For principals, supervisors, and teachers now engaged in the field, or those having a background in psychology and mental deviation, contemplating the field. Attention given to organization and curriculum at elementary and secondary levels. Methods and materials adapted to age groupings; pupil guidance and evaluation; study of job outlets and work try-outs or other subjects of student's choice.

446 *Workshop for Teachers of Partially Sighted* Summer Only
3 sem. hrs.

Individual teaching problems. Review of recent educational literature and research in impairment of vision, adaptation of instructional materials to the conservation of vision, curriculum adjustment, personality problems and guidance. For teachers experienced in working with the partially seeing.

447 *Coordinating Educational Programs for Exceptional Children*
2 sem. hrs.

Principles and problems involved in the administration of educational programs for exceptional children.

448 *Instructional Procedures for Maladjusted Pupils* 3 sem. hrs.

Organizing and administering laboratory procedures for maladjusted and educationally retarded pupils. Emphasis on reading abilities. Selection and use of learning materials. Research pertaining to personality factors as related to school success. Supervised laboratory work with children. Prerequisites or concurrent registration: Education 103 and 310.

460 *Guidance Appraisal* 2 sem. hrs.

Techniques of administering and interpreting student appraisal devices in elementary and secondary guidance programs with emphasis on non-standardized test devices and case study procedures. Prerequisite or concurrent registration: Education 360.

461 *Organization of Guidance Services* 2 sem. hrs.

The activation, organization, administration, and utilization of guidance services. Selection of personnel, in-service education of the staff, evaluation of the program, and steps in the introduction of a comprehensive program are considered. Prerequisite: Education 360.

462 *Supervised Practicum in Guidance Procedures* 3 sem. hrs.

Provides the prospective guidance counselor with practical experience in counseling and related guidance activities under supervision. Prerequisite: Education 360 and Psychology 433.

463 *Group Procedures in Guidance* 2 sem. hrs.

Group guidance principles and applications. Emphasis upon the nature of groups, principles of group dynamics, and guidance applications of group procedures; orientation, units and courses in self-analysis, educational and vocational planning, and group counseling. Prerequisite: Education 360.

470 *Teaching in the Community (Junior) College* 2 sem. hrs.

Techniques and methods of teaching on the community college level; problems of articulating the community college and the high school; special qualifications needed for the community college teacher; his preparation and training; the use of examinations, marks, and records; specific problems and methods of the classroom peculiar to the various teaching fields.

471 *Community (Junior) College Administration* 2 sem. hrs.

Introduction to the administration and organization of junior college. Relationships with boards of control, community, administrators, faculty, and students. Legal aspects, records, financial support, and public relations.

472 *The Community (Junior) College* 3 sem. hrs.

History and development, functions, curricula, instruction and personnel problems in the community college. The community college is studied in relation to other units of the educational system.

473 *Seminar in the Community (Junior) College* 2 sem. hrs.

Specific problems related to the community college, such as problems of guidance and personnel work; sponsorship of out-of-class activities; improvement of instruction; and curriculum problems. The exact content of the course may vary from semester to semester. The problems will be selected, in part, according to the needs and interests of the students.

474 *Seminar in College Teaching* 3 sem. hrs.

Designed to give prospective college teachers a general overview of the diversified responsibilities, obligations, and knowledge associated with collegiate teaching. Curricula of higher education, understanding of college students, and prevailing problems in collegiate education are stressed in the seminar. Extensive reading in the field of collegiate education is expected of each student in addition to research relevant to college teaching in his own field of academic specialization. Close cooperation is maintained with each student's major department.

475 *Introduction to Research* 3 sem. hrs.

Selection of a research problem, collection of data, types of research, the research report, and use of the library in connection with the research problem. Elements of statistics are introduced. Emphasis is given to understanding and interpreting frequently used statistical concepts. Provides a background for the preparation of the thesis. Enables the student to become an intelligent consumer of the products of educational research.

476 *Seminar in Curriculum Theory* 3 sem. hrs.

The nature of curriculum theory and the sources of knowledge utilized in the formulation of curriculum theory. Critical analysis of major curriculum patterns that have emerged in American education. Analysis of contemporary proposals for curriculum improvement. Approaches to curriculum study, revision, and evaluation.

477 *Supervision of Instruction* 2 sem. hrs.

Principles underlying the improvement of instruction through supervision. Emphasizes the following supervisory needs: (a) an understanding of the leadership role; (b) an understanding of recent research concerning pupils, including learning; (c) an understanding of group dynamics, and (d) an understanding of action research and its application. Techniques for giving the understandings practical application are considered. Means are proposed for the evaluation of pupils, teachers, supervisors, and supervisory practice.

478 *Legal Bases of Education* 3 sem. hrs.

The conceptual and structural design of public education and the American legal system. Includes study of constitutional law, statutory enactments, and judicial decisions, with emphasis upon case law. Authority of the states; local school districts, powers and duties of district officers; legal status of parents and pupils; liability of school districts and officers; use of school property; school support and finance; the school program and Illinois school law.

479 *Financial Bases of Education* 3 sem. hrs.

Financial accounting and reporting, budgeting, unit costs, depreciation, insurance, school revenues, and other problems of school finance.

480 *School Plant Planning* 3 sem. hrs.

School sites, buildings, and equipment with emphasis on planning of building programs. Includes visitation of buildings.

481 *Administration and Organization of Schools* 3 sem. hrs.

School administration and organization, showing the relationship of national, state, and local education. Principles of administration and organization relating to the functioning of a school system are explored. Special attention is directed toward selection, retention, improvement of teachers, improvement and development of curriculum, use of records, interpreting the schools to the public, and other problems taken from the necessary experiences of public school administration.

482 *Administration as a Science and an Art* 3 sem. hrs.

Second course in a basic sequence of an administration core; sociological and psychological interpretations of administration, with emphasis upon human relations and leadership. Development of understandings, values, concepts through study of theory and its practical application in the educational setting. Decision making; administration and the behavioral sciences, theories of administration, power and authority, motivation and morale, organization and leadership, and research issues in education. Prerequisite: Education 481 and advanced graduate standing.

483 *Educational Leadership* 3 sem. hrs.

Designed to provide an understanding of the leadership function in formal and informal organizations. Includes study of executive behavior, contributions to administrative theory of non-educational fields; improvement of staff relations; human relations approach to the administrative process; policy development at all levels; evaluation of enterprises and programs; and research issues in education. Required of all doctoral candidates in school administration. Prerequisites: Education 481 and 482 and admission to doctoral program.

484 *Superintendent and Central Staff* 2 sem. hrs.

Development of knowledge, responsibilities, and competencies required of chief administrative officer, and in the case of larger districts, his central staff. Emphasizes district-wide policy making, curriculum development, improvement of instruction, effective leadership of personnel, community relations, and efficient operational procedures. Designed to develop a high degree of understanding and skill in the administration of a school district. Prerequisite: Advanced graduate standing.

485 *The Principalship* 2 sem. hrs.

Development of knowledge and competencies of the building principal as an instructional leader. Offered as a specialized course for those having a basic preparation in general administration.

486 *Management of Educational Funds* 2 sem. hrs.

Development of high competence and deeper concepts of school finance, with particular emphasis on the management phase. Includes management of all school funds, cash and accrual budgeting, financial accounting, financial statements and reports, safeguards, debt service, internal accounting, and management of special problems of finance. Prerequisite: Education 479.

487 *Evaluation Techniques* 2 sem. hrs.

Basic principles underlying the evaluation of school work. Includes development, use, and improvement of standardized and teacher-made tests and self-rating devices. Stresses interpretation of test data and use of test results. Students may develop evaluation programs and undertake projects in their major fields.

488 *All-School Activities* 2 sem. hrs.

Organization of life in the elementary school in ways that give practice in democratic relationships and procedures; parent and pupil participation in school planning; purposes and procedures for developing such all-school activities as assemblies, school paper, clubs, school council, uses of radio and recreational program. School participation in suitable community projects.

489 *Field Work in Educational Administration* 4-6 sem. hrs.

Provides responsibilities and experiences in the study of administrative problems in school-community setting. Students will actually develop for a school system a survey or study of a significant problem. In addition to its clinical aspect, the student will emphasize intellectual and creative exploration of major educational issues, utilizing the total field of education and, where relevant, related disciplines. Prerequisite: Advanced standing and consent of instructor.

490 *Research in Education* Variable Credit

Research relating to research requirements for Specialist, Doctor of Philosophy, and Doctor of Education degrees. Approval of the Head of the Department of Education and Psychology or Director of program in which student is enrolled is required. Maximum of 16 semester hours credit in research may be counted toward residency.

491 *Internship-Seminar in College Teaching* 3 sem. hrs.

For students in the college teaching programs. Observation and teaching in the student's major area, with other experiences appropriate to academic involvement at the college level. Offered in cooperation with the student's major department.

494 *Research Seminar in Education* 1 sem. hr.

For advanced graduate students in education who have taken basic courses in research. Research proposals and projects are critically evaluated. A student may enroll in the course as often as approved by his adviser. Prerequisites: Education 475, Education 434, or consent of instructor.

495 *Seminar in Curriculum* 3 sem. hrs.

Exploration of major developments and experimental programs having an impact upon school curricula. Students will have an opportunity to identify certain curriculum innovations for depth study. Each innovation will be analyzed critically. Research data relevant to the innovation will be examined with problems and means of utilizing the innovation for curriculum improvement considered. Prerequisite: Advanced graduate standing or special permission of the instructor and Education 476.

496 *Seminar in Educational Administration* 3 sem. hrs.

Designed for advanced graduate students in Educational Administration. Content will vary according to the needs of students and the emerging problems that need depth study. May be taken more than once providing the subject matter is not repeated. Prerequisite: Advanced graduate standing.

497 *Professional Laboratory Experience* 3 sem. hrs.

Designed for teachers, supervisors, and administrators who would like to increase their competencies in providing guidance to student teachers. Attention is given to the place of student teaching in the total program; student teachers as learners; assisting, guiding, and evaluating student teachers. Each class member will complete a project of use in working with a student teacher.

498 *Internship* 3-8 sem. hrs.

Opportunities to work with principals, superintendents, teachers, and lay groups in public school situations. Of special benefit to inexperienced students and for those preparing for administrative work in public schools. Assignments are made by the Dean of the Graduate School on recommendation of the student's academic adviser at least two months prior to beginning internship.

PSYCHOLOGY

The department offers the M.S. and M.S. in Ed. degrees in School Psychology and the M.S. in Psychology. Requirements for the master's program are as follows:

Psychology

The following courses are required in the M.S. in Psychology program: 330—Experimental Psychology I, 331—Psychological Measurement, 340—Statistics I, 403—Physiological Psychology, 410—Advanced Psychology, 431—Learning, 461—Theories of Personality. Students who have taken any of the required courses at the undergraduate level may take additional elective hours. University requirements for the Master's degree are listed on pages 18-22.

School Psychology

At least 20 semester hours in Education and Psychology are required, including Education 434, 475, and Psychology 330, 331, 334, 433, 434, and 436.

Additional courses are selected following recommendations of the adviser in this curriculum.

301 *Advanced Developmental Psychology* 3 sem. hrs.

Study of available research on the motor, mental, and emotional development; growth of understanding; personality of children during pre-adolescent and adolescent years; application to problems of guidance.

330 *Experimental Psychology I* 3 sem. hrs.

Simple experiments in the psychological laboratory to give appreciation of the problems of control in the scientific study of behavior. Two lectures and one laboratory period per week plus additional laboratory assignments. Prerequisite: Psychology 111.

331 *Psychological Measurement* 3 sem. hrs.

Use and interpretation of psychological test results with emphasis on the quantitative approach. Group and individual tests studied and demonstrated. Students have practice in giving, scoring, and interpreting standardized tests. Meets the requirements of psychological testing for students in special education.

333 *Readings in Psychological Research* 1 sem. hr.

Study and evaluation of current research dealing with the student's major field of interest. Guidance is provided in doing library research on one or more topics of the student's choosing.

334 *Research Projects in Psychology* 3 sem. hrs.

Work in designing and carrying on research projects, both in the laboratory and in more lifelike situations. The use and understanding of appropriate statistical procedures is emphasized.

345 *Case Work in Behavior Problems* 2 sem. hrs.

Making case studies: interviewing, using record, and case reporting. To be taken with student teaching. Prerequisite: Psychology 232.

346 *Psychology of Exceptional Children* 2 sem. hrs.

The study of children who deviate markedly above or below the norms of their groups in reference to one or several intellectual, emotional, physical, or social attributes, or any combination of these, so as to create a special problem in regard to their education, development, or behavior. Emphasis is placed on the implications for educational and treatment programs. Prerequisite: Psychology 232 and 331.

347 *Behavior Disorders in Children* 3 sem. hrs.

Medical, psychological, sociological aspects of behavioral disorders of children. Prerequisite: Education 102 or Psychology 115.

348 *Mental Retardation* 3 sem. hrs.

Introduction to medical, psychological, sociological, and educational aspects of mental retardation. Prerequisite: Education 102 or Psychology 115.

349 *Psychology of the Mentally Deviant* 3 sem. hrs.

Personality, general behavior pattern, and educational possibilities of mentally deficient and gifted children. Prerequisite: Education 102 or Psychology 115.

401 *Comparative Psychology* 3 sem. hrs.

The study, analysis, and investigation of the relationships among different species with regard to their behavior, emotions, and mental processes.

402 *Differential Psychology* 3 sem. hrs.

Differences and variations in psychological characteristics among individuals and groups. Effects of various factors in creating individual or group differences. Prerequisite: Psychology 301.

403 *Physiological Psychology* 3 sem. hrs.

Physiological and biochemical factors which underlie the behavior of organisms and the mechanisms which mediate between the impinging of stimuli upon the organism and the effect of the organism upon the environment.

404 *Psychology of Perception* 3 sem. hrs.

Cognitive processes and their relationship to other processes. The relationship of sensation, attention, and memory to perception and the factors which influence perception.

406 *Abnormal Psychology* 3 sem. hrs.

Psychological aspects of the behavior disorders, including study of the neuroses, psychoses, character disorders, mental deficiencies, and other psychopathological conditions.

430 *Experimental Psychology II* 3 sem. hrs.

Lectures, demonstrations and laboratory experiments dealing with methodology, results, and interpretation of human and animal behaviors with emphasis on sensory processes, perception, and learning. Prerequisite: Psychology 330.

431 *Learning* 3 sem. hrs.

Experimental data bearing on the problem of human learning; learning theory; learning data and theory in relation to the problems of the teacher.

432 *Motivation* 2 sem. hrs.

Experimental study of drives, social motives, theories of motivation, practical applications.

433 *Theories and Techniques of Counseling* 3 sem. hrs.

Goals, theoretical foundations, methods, and procedures of school counseling. Emphasizes diagnosis and prognosis in counseling, the dimensions of interview relationships, and the evaluation of counseling procedures.

434 *Individual Mental Testing* 3 sem. hrs.

Training in individual mental testing with emphasis on the Binet and the Wechsler. Prerequisite: Psychology 232.

435 *Introduction to Projective Techniques* 3 sem. hrs.

Theory of projective methods and development of competence in the use of selected procedures. Prerequisite: Psychology 434.

436 *Practicum for School Psychologists* 3 sem. hrs.

Clinical practice in the Psychological Counseling Service. Gives students training in individual psychological diagnosis. Twelve hours per week. Prerequisite: Psychology 433.

437 *Advanced Educational Psychology* 3 sem. hrs.

A consideration of topics such as learning, retention and forgetting, transfer of training, reading, individual differences, intelligence, language, social class influences on education and mental hygiene in the classroom. Emphasis is placed on the application of psychology to education. Prerequisite: Education 115.

460 *Vocational Counseling* 2 sem. hrs.

Acquiring and using occupational and educational information. Consideration of job requirements and training opportunities; developing occupational units; nature of vocational development. Prerequisite: Education 360.

461 *Theories of Personality* 3 sem. hrs.

Analysis of major theoretical formulations concerning personality with emphasis upon their current status and evidential bases.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

ELEMENTARY EDUCATION

Head of Division: Helen M. Nance. Office: Moulton Hall 103.

The Division of Elementary Education offers work leading to the following degrees: M.A., M.S., M.S. in Ed. Program requirements are as follows:

At least 12 semester hours in Education and Psychology are required, including Education 403, 475, and 476.

In the general Elementary Education curriculum, additional courses are selected following recommendations of the Director of the Division of Elementary Education.

A student who wishes to specialize may do so in any one of the departments noted below. In this instance courses in addition to those required in Education and Psychology are selected following recommendations of the academic adviser in the department of specialization: Biological Sciences, Geography, Health and Physical Education for Women, Literature and Language Arts, and Social Sciences.

Courses are listed with offerings in Education-Psychology and other fields of specialization.

ENGLISH

TEACHING STAFF

Head of the Department: Victor E. Gimmestad, Office: Schroeder Hall 334.

Professors: Ferman Bishop, George Canning, Howard I. Fielding, Victor E. Gimmestad, Ruth Henline, Milford C. Jochums, Christopher Spencer, Dale B. Vetter.

Associate Professors: Richard E. Allen, Robert F. Beauchamp, Ralph Bellas, C. J. Gianakaris, John M. Heissler, John S. Hill, Wayne Huebner, Kenneth L. Ledbetter, William R. Linneman, Carroll V. Peterson, Taimi M. Ranta, Conrad B. Suits.

Assistant Professors: Carroll B. Cox, Pauline S. Drawver, Robert L. Duncan, Robert D. Sutherland.

The department offers work leading to the following degrees: M.A., M.S., and M.S. in Education. Students not interested in certification will elect the M.A. or M.S. and will take thirty-two semester hours in the department. Stu-

dents interested in teaching on the college level may wish to take Education 474 and 491 in addition to twenty-six semester hours in the department. Those interested in the secondary school curriculum must take six semester hours from the suggested courses listed in the catalog in addition to the twenty-six hours in the department.

Students may choose one of two methods of completing their work toward the master's degree: they may complete thirty-two hours of course work and take a comprehensive examination; or they may complete twenty-eight hours of course work and write a thesis. In either case they must take English 310 and 497. They should elect courses which lead to concentration in academic areas. Students in the secondary curriculum may choose to concentrate in children's literature or professional studies, but they must take at least six hours in literatures of England or America. A reading knowledge of French or German is recommended.

306 *Regional and Area Studies* 1-9 sem. hrs.

An intensive study of particular lands, environments, cultures, literatures, and peoples. May be given in cooperation with other departments, on or off campus. The areas to be studied, participating departments, and credit hours available in the several departments will be announced each time the course is offered.

310 *History and Development of the English Language* 3 sem. hrs.

Historical approach to the development of the English language, to help student and prospective teacher discover reasons behind the meanings, spelling, syntax, and usage of contemporary English.

311 *Old English* 3 sem. hrs.

The elements of Old English grammar, with selected readings.

317 *Philosophical and Critical Prose of the Victorian Period*
3 sem. hrs.

Chief prose writers of the century and their contributions to the thought of the present time.

325 *English Drama Before 1642* 3 sem. hrs.

English Drama from its beginnings in the Medieval Church to the closing of the theatres with special emphasis upon the plays of Marlowe and Johnson.

327 *Restoration and Eighteenth Century English Drama* 3 sem. hrs.
English Drama from the Restoration in 1660 through Sheridan.

328 *Modern British and American Drama* 3 sem. hrs.

Readings in twentieth-century British and American Plays and related critical documents.

332 *Selected Studies in American Literature* 3 sem. hrs.

Concentrated coverage of one or more important literary figures. If different material is covered, the course may be repeated. Prerequisite: English 130.

348 *Playwriting* 3 sem. hrs.

Playwriting techniques of selected masters of dramaturgy, with practical application of the techniques in the writing of original plays. Both literary and professional aspects of writing for the theatre are considered. When possible, opportunity will be provided for the laboratory production of original scripts of quality in University theatre-workshop projects.

370 *Studies in Children's Literature* 3 sem. hrs.

Advanced studies in children's literature from kindergarten through grade eight, including critical history, evaluation, and selection of significant books particularly from the literary standpoint. Prerequisite: course work in children's literature or proficiency demonstrated through proficiency.

372 *Problems in Children's Literature* 3 sem. hrs.

Advanced study in the broader field of books for children ranging from kindergarten through grade eight, with particular emphasis upon evaluation on the bases of principles of child growth and development and of curricular uses, as well as upon problems of special interest for individual students. Prerequisite: course work in children's literature or proficiency demonstrated by examination.

375 *Studies in Literature for Adolescents* 3 sem. hrs.

Advanced study in literature for grades seven through twelve, including evaluation and selection of significant books as well as appraisal of recent books. Prerequisite: one related course (English 272, English 296, Library 214), or proficiency demonstrated by examination.

382 *Literary Criticism* 3 sem. hrs.

Survey of critical and esthetic theory designed to aid the prospective teacher in evaluating ancient and modern literature, in broadening and refining literary tastes, and in conveying to the students a knowledge of the purposes of literature.

386 *The Eighteenth-Century English Novel* 3 sem. hrs.

The English novel from its English origin through the eighteenth century. Prerequisite: English 110.

387 *The Nineteenth-Century English Novel* 3 sem. hrs.

The English novel from Mathew Lewis through Thomas Hardy.

388 *The Twentieth-Century English Novel* 3 sem. hrs.

The twentieth-century English novel from Arnold Bennett through Lawrence Durrell.

390 *Recent Research in the Teaching of the Language Arts*
2 sem. hrs.

Critical study of current practice and research in the teaching of the language arts in the elementary school.

395 *Problems in the Teaching of English* 2 sem. hrs.

Critical examination of current practice and research in the teaching of language, literature, and composition in the junior high school and the senior high school in order to aid the teacher in meeting individual problems.

416 *Eighteenth-Century English Literature* 3 sem. hrs.

The development of present-day social and political ideas as portrayed in the writings of the eighteenth century with special emphasis upon the works of Dryden, Pope, Swift, Johnson and Goldsmith.

418 *Nineteenth-Century English Poetry* 3 sem. hrs.

Representative poets of nineteenth-century England such as Wordsworth, Keats, Browning, and Arnold.

420 *Studies in Chaucer* 3 sem. hrs.

Study and research in the life works of Geoffrey Chaucer.

422 *Studies in Shakespeare* 3 sem. hrs.

An approach to Shakespeare through sources, textual problems, criticism, and modern scholarship.

424 *Studies in Milton* 3 sem. hrs.

Study and research in the life and works of John Milton.

434 *American Literature Since 1914* 3 sem. hrs.

Wide reading in the works of Faulkner, T. S. Eliot, and other recent American authors.

450 *Studies in Ancient Literature* 3 sem. hrs.

Selected readings from antiquity, both from the Eastern and Western worlds. Prerequisite: English 150 or consent of the head of the department.

451 *World Literature* 3 sem. hrs.

Readings in foreign literature in translation, selected to meet the needs of the student.

452 *Studies in the Renaissance* 3 sem. hrs.

Consideration of the Renaissance and its major authors.

453 *Studies in the Enlightenment* 3 sem. hrs.

Consideration of The Enlightenment, chiefly in France from 1650 to 1750.

454 *Studies in European Romanticism* 3 sem. hrs.

Consideration of the Romantic movement and its major authors.

456 *Studies in Modern World Literature* 3 sem. hrs.

A study in depth of the fiction and drama after World War I from all parts of the world other than the United States.

487 *Studies in the American Novel* 3 sem. hrs.

The novel in the United States with emphasis on the nineteenth and twentieth centuries.

491 *Internship-Seminar in College Teaching of English* 3 sem. hrs.

Credit for the course is given in Education (see Education 491).

493 *Topics in English* 1-3 sem. hrs.

An intensive, practical refresher course covering one or more aspects of English. A student may enroll in this course for credit more than once, providing that the subject matter covered is not duplicated.

497 *Research Seminar* 2 sem. hrs.

Introduction to bibliography, methods of scholarly research and the critical evaluation of research in the field.

498 *Independent Reading* 2 sem. hrs.

Available only by permission of the head of the department to those students who would profit more from directed reading than from an existing course.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

FOREIGN LANGUAGES

TEACHING STAFF

Head of the Department: Thomas E. Comfort. Office: Edwards Hall 200.

Professors: Allie Ward Billingsley, Thomas E. Comfort, Brigitta J. Kuhn, Henry R. Manahan.

Associate Professors: Richard D. Abraham, A. Gordon Ferguson, Joseph Laurenti, Patrick Tarrant, Jose A. Rodriguez.

Assistant Professors: William D. Fuehrer, Vytas V. Gaigalas.

The Department of Foreign Languages reserves the right to examine transfer students as to their ability to carry courses on the 300 level.

The department offers work leading to the following degrees: M.A., M.S. in Ed. The master's degree program is flexible, permitting specialization in either French, Latin, or Spanish. Courses are approved by major adviser and Head of the Department of Foreign Languages. A thesis may be required at the discretion of the head of the department.

GENERAL COURSES

300 *Research in Foreign Languages* 1-3 sem. hrs.

Supervised work in a foreign language, in comparative language studies, or in educational materials for a foreign language laboratory. Assignments will depend on the preparation and interest of the student. By arrangement with the Head of the Department of Foreign Languages.

491 *Internship-Seminar in College Teaching in the Foreign Languages* 1-3 sem. hrs.

Credit for this course is given in Education (see Education 491).

497 *Research Seminar* 1-6 sem. hrs.

Introduction to bibliography, methods of scholarly research and the critical evaluation of research in the field. Must be taken by first year graduate students unless the department requires Education 475. May be repeated by more advanced students who desire direction and constructive criticism as they pursue research problems.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

FRENCH

301 *French Romanticism* 3 sem. hrs.

Reading of poetry, novels, plays, criticism, stories, and history. Class conducted in French. Prerequisite: French 221, 222.

302 *French Classicism* 3 sem. hrs.

Reading of plays by Corneille, Racine, and Moliere, and of selections from other seventeenth century writers. Class conducted in French. Prerequisite: French 221, 222.

309 *French Phonetics* 2 sem. hrs.

A scientific approach to French pronunciation. Correct formation of French sounds; practical application of the theory of phonetics to teaching. Practice in the diction of ordinary conversation as well as the more formal diction of public reading and speaking. Prerequisite: Two courses in French literature.

316 *French Literature of the Sixteenth Century* 3 sem. hrs.

An analysis of the Renaissance as it expressed itself in the leading writers of France in the 16th century. Prerequisite: Two courses in French literature.

318 *Moliere* 3 sem. hrs.

Major comedies of Moliere, together with some of the farces and comedies.

332 *French Lyric Poetry* 2 sem. hrs.

Reading of French lyrics from the 16th century to the present; study of the schools of poetry; explication de texte; oral reading. Prerequisite: Two courses in French literature.

401 *Readings in Contemporary French Literature* 3 sem. hrs.

Trends in contemporary prose, with readings from the novel and the drama.

402 *Stylistics* 3 sem. hrs.

Intensive, advanced grammar and composition, including analysis of style.

404 *Balzac* 3 sem. hrs.

Balzac's work with emphasis on his novels as a mirror of his time, and their influence on the development of the novel as a literary form.

416 *Montaigne* 3 sem. hrs.

A detailed study of the life and works of Montaigne.

418 *La Fontaine* 3 sem. hrs.

A detailed study of the life and works of La Fontaine.

421 *History of French Language* 3 sem. hrs.

Evolution of the language from its origins to the present day.

430 *Realism and Naturalism* 3 sem. hrs.

A detailed analysis of French literature of the late nineteenth century, including the works of Flaubert, Zola, and Baudelaire.

GERMAN

302 and 303 *Goethe and Schiller* Each 3 sem. hrs.

Classic German literature with emphasis on dramas of Goethe and Schiller. Lectures, collateral reading, and reports. Prerequisite: Two courses in German beyond 116.

318 *Goethe's Faust* 3 sem. hrs.

A critical study of Parts I and II of *Faust* as literature and as an expression of Goethe's philosophy. Lectures, assigned readings, and reports. Prerequisite: Two courses in German beyond 116.

GREEK

301 and 302 *Classical Greek* Each 3 sem. hrs.

The Greek alphabet, pronunciation, essentials of grammar, translation of reading material of graded difficulty, exercises in writing Classical Greek, consideration of the Greek element in English. Prerequisite for a master's degree in Latin.

LATIN

315 *Horace: Odes and Epodes* 3 sem. hrs.

Translation, interpretation, and metrical reading of Horace's lyric poetry. Critical study of the characteristic features of his style. Life in the Augustan Age and Horace's philosophy.

316 *Roman Satire* 3 sem. hrs.

The history and development of satire as a literary genre; reading of representative selections from Ennius, Lucilius, Horace, Persius, and Juvenal; a consideration of their influence upon later literature.

318 *Tacitus* 2 sem. hrs.

Agricola and *Germania*. An introduction to the prose of the Silver period.

319 *Selections from the Letters of Cicero* 2 sem. hrs.

Translation of some of the most interesting and important letters of Cicero as a commentary upon the manners, history, and politics of the period of the Republic.

320 *Selections from the Letters of Pliny* 2 sem. hrs.

Readings from the correspondence of Pliny selected for their importance as a commentary on Roman life and manners during the period of the Empire. Study of the letters both as human documents and as literary compositions.

401 *Suetonius' Lives of the Caesars* 2 sem. hrs.

Translation of the biographies of some of the most important of the Caesars and a study of the place of the Caesars in history. Designed to give the teacher of Latin a good historical background.

402 *Lucretius* 3 sem. hrs.

Reading of selected portions of the *De Rerum Natura*. Study of ancient philosophy with special emphasis on Stoicism and Epicureanism.

403 *The Annals of Tacitus* 3 sem. hrs.

Translation of selections from the *Annals* covering the events of the early Empire. Critical study of Tacitus as an historian.

404-405 *History of Latin Literature* Each 3 sem. hrs.

Development of Latin literature from its beginning to the close of the Republic. Works of the writers of the Empire period. Translation of representative selections.

406 *The Elegiac Poets* 2 sem. hrs.

Readings from the Roman elegiac poets; the influence of these poets upon English and American literature.

407 *Cicero's Orations* 3 sem. hrs.

Translation and interpretation of representative works drawn from the forensic orations of Cicero, with particular attention to the details of the life of Cicero and the history and politics of the last century of the Roman Republic.

410 *Advanced Latin Prose Composition* 3 sem. hrs.

Application of the major principles of Latin grammar and syntax in writing connected discourse based on different Latin authors as a means of developing facility in the use of Latin forms and constructions.

415 *Vergil's Georgics and Eclogues* 2 sem. hrs.

Reading of the *Georgics* and *Eclogues* of Vergil; the style of Latin pastoral and didactic poetry.

421 *History of the Latin Language* 2 sem. hrs.

Development of the Latin language with attention directed to the grammatical forms and syntactical usage in selected writings of the early, classical, and post-classical authors. Some treatment of the relation of the various Indo-European languages to each other, the place of Latin and English among these languages, and the history of Latin elements in English.

424 *Problems in the Teaching of Latin* 2 sem. hrs.

Aims, subject matter, and methods of the teaching of Latin in the light of new emphasis in the high school curriculum. Critical examination of current high school texts, preparation of syllabi and tests, and a study of audio-visual materials available for Latin classes.

SPANISH

301 *Spanish-American Literature* 3 sem. hrs.

History of Spanish-American literature from the colonial period to the present day. Prerequisite: Two courses in Spanish literature or Spanish-American literature.

303 *Mexican Literature* (Spanish) 2 sem. hrs.

An intensive survey of Mexican literature and its cultural background from the period of the conquistadors to the present.

304 *La civilización mexicana* (Spanish) 2 sem. hrs.

A study of the formation of the Mexican nationality of today, as the fusion of Hispanic and Indian cultures. A consideration of the development of attitudes, traditions, and way of life of the Mexican people.

309 *Spanish Phonetics* 2 sem. hrs.

A scientific study of the speech sounds of Castilian Spanish.

310 *Sintaxis española* 2 sem. hrs.

A descriptive study of modern Spanish with frequent reference to psychological and historical forces that have influenced its present form.

332 *Spanish Drama of the Siglo de Oro* 3 sem. hrs.

Class and collateral reading of selected plays from the great dramatists of Spain's Golden Age. Prerequisite: Two courses in Spanish literature.

392 *Problems in the Teaching of Spanish* 2 sem. hrs.

Re-evaluation of traditional methods of teaching Spanish. Examination and evaluation of modern techniques. Problems related to the teaching of Spanish in general. Problems related to specific methods and techniques.

401 *Don Quixote* 3 sem. hrs.

Reading of the *Quixote* with special attention to problems of interpretation and literary criticism.

402 *The Picaresque Novel* 3 sem. hrs.

A study of the Picaresque Novel and its influence on modern world literature. Emphasis on *Lazarillo de Tormes*, *Guzman de Alfarache*, *La vida de Marcos de Obregon*, *La vida del Buscon*, *Vide y hecho de Estebanillo Gonzales*.

411 *Spanish-American Novel* 4 sem. hrs.

The Spanish-American novel of the nineteenth and twentieth centuries with emphasis on the most characteristic author of each period and each genre.

412 *Leaders in Spanish-American Thought* 4 sem. hrs.

The writers of prose—exclusive of fiction—who have shaped or influenced thought and action in Spanish America during the past two centuries, from the beginning of the movement for independence to the present day.

416 *Spanish Literature Before 1500* 4 sem. hrs.

Introduction to Spanish literature of the *Edad Media*. Intensive and critical study of one or more of the major works of the period.

421 *History of the Spanish Language* 4 sem. hrs.

History of the Spanish language with attention to both external and internal aspects of its development.

422 *Seminar in Contemporary Spanish Literature* 4 sem. hrs.

The generation of 1898 and representative authors of the twentieth century.

FRENCH

(See Foreign Languages)

GEOGRAPHY

TEACHING STAFF

Head of the Department: Arthur W. Watterson. Office: Schroeder Hall 125

Professors: Paul J. Brand, Kermit M. Laidig, James E. Patterson, Stanley B. Shuman, John E. Trotter, Arthur W. Watterson

Associate Professors: Paul F. Mattingly, Elsa A. Schmidt, Thomas K. Searight, David L. Wheeler

Assistant Professors: James D. Carl, Richard R. Hart, E. Joan Miller

The department offers work leading to the following degrees: M.S., M.S. in Ed. University requirements for master's degrees are described on pages 18-22.

300 *Cartography and Graphics* 3 sem. hrs.

Graphic representation of statistical data, including compilation and preparation of various types of maps and graphs. Map projections, scales, symbolisms, dot maps, and their use.

305 *Aerial Photograph Interpretation* 3 sem. hrs.

An introduction to the basic principles of photogrammetry and the techniques and applications of aerial photograph interpretation, emphasizing the functional relationships of features located upon the earth's surface.

306 *Regional and Area Studies* 1-9 sem. hrs.

An intensive study of particular lands, environments, cultures, and peoples. May be given in cooperation with other departments, on or off the campus. The areas to be studied, participating departments, and credit hours available in the several departments. will be announced each time the course is offered.

310 *Techniques of Field Work* 3 sem. hrs.

Techniques of mapping and interpretation of the phenomena of the natural and cultural landscapes. Most of the time in the field doing original study and mapping.

315 *Methods and Concepts in American Geography* 2 sem. hrs.

A survey of selected professional publications designed to acquaint the student with the development of basic concepts and methods in American geography. Enables the student to evaluate geographic viewpoints and approaches in research and teaching.

325 *World Population and Resources* 3 sem. hrs.

Population growth and resource distribution and their impact on national policy, levels of living, education, and food supply.

335 *Industrial Geography* 3 sem. hrs.

Distribution and locational factors influencing distribution of American industries. Relationship of American industries to world industrial patterns.

340 *Climates of the Continents* 2 sem. hrs.

Climates of the various continents and associated controls. Analysis of classifications of climate and problems of climatic classifications.

345 *Problems in Conservation* 3 sem. hrs.

Investigations of specific problems in conservation of soils, water, forests, wildlife, minerals, and recreational land. These problems are explored in their complex national, regional, and local contexts.

365 *Geographic Materials in Education* 3 sem. hrs.

The role of maps, globes, and other aids in teaching geography. Practical experience in selection and organization of geographic materials under laboratory situations.

375 *Economic Geology* 3 sem. hrs.

Earth materials of economic importance. Characteristics and uses of common metallic and nonmetallic minerals and rocks. Prerequisite: Geography 175.

380 *Geomorphology* 3 sem. hrs.

Detailed study of the origin, classification, description, and interpretation of land forms. Prerequisite: Physical Geology 175.

385 *Invertebrate Paleontology* 4 sem. hrs.

Concepts of evolution, taxonomy, and paleontological species; invertebrate phyla, with emphasis on groups with paleoecologic and stratigraphic significance. Three hours of lecture, three hours of laboratory. Prerequisite: Historical Geology 180 or Life of the Geologic Past 275 and Biological Sciences 191.

405 *Geography in Education* 2 sem. hrs.

Historical development of the science and teaching of geography. Modern geography and its contribution to general education. Evaluation of current teaching materials.

410 *Geography of Discovery and Exploration* 2 sem. hrs.

Contributions made by discovery and exploration to the geographical knowledge of the world from ancient to early modern times.

415 *Seminar in Urban Geography* 3 sem. hrs.

Importance of urban agglomerations and the problems presented by them. A field study of a typical urban center such as Bloomington-Normal, and type studies of the great urban centers in the United States and the world. Attention to the cultural pattern imposed upon the natural landscape features.

420 *Physiography of North America* 3 sem. hrs.

Physiographic regions of North America. Emphasis placed upon the development of surface features of each area as a background for present geographic patterns of that region. One two-day field trip is required.

430 *Geography of Latin America* 3 sem. hrs.

Intensive study of selected areas with emphasis upon settlement patterns, resources and interregional relations.

435 *Geography of Western Europe* 3 sem. hrs.

A regional and economic development of the British Isles and continental Europe. Intensive investigations of resource, industrial, agricultural, and population patterns of Europe. Illustrated local units of occupation.

440 *Mediterranean Lands* 3 sem. hrs.

Regional survey of the physical, cultural, and economic aspects of southern Europe, the Levant, and North Africa.

445 *Geography of the Middle East* 3 sem. hrs.

Survey of the lands and peoples of southern and southwestern Asia. Resource and population patterns of regional and political units.

450 *Geography of the Far East* 3 sem. hrs.

Lands and peoples of eastern Asia, with emphasis on China and Japan. International, national, and regional characteristics and problems.

491 *Internship-Seminar in College Teaching in Geography*
3 sem. hrs.

Credit for this course is given in Education (see Education 491).

497 *Research Seminar* 1-6 sem. hrs.

Introduction to bibliography, methods of scholarly research and the critical evaluation of research in the field. Must be taken by first year graduate students unless the department requires Education 475. May be repeated by more advanced students who desire direction and constructive criticism as they pursue research problems.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

GERMAN

(See Foreign Languages)

GREEK

(See Foreign Languages)

HEALTH AND PHYSICAL EDUCATION

TEACHING STAFF (MEN)

Head of the Department: Burton L. O'Connor. Office: Horton Field House 203-A.

Professors: Arley F. Gillett, Eugene L. Hill, Burton L. O'Connor.

Associate Professors: James E. Collie, Paul Dohrman, Milton E. Weisbecker.

Assistant Professors: Buford H. Bass, Lawrence E. Bitcon, Ernest Degutis, Robert N. Singer.

TEACHING STAFF (WOMEN)

Head of the Department: Ellen D. Kelly. Office: McCormick Gymnasium 101.

Professors: Bernice G. Frey, Miriam Gray, Barbara C. Hall, Margaret L. Jones, Ellen D. Kelly, Gwen Smith.

Associate Professor: Betty Keough.

Assistant Professors: G. Laurene Mabry, Donna Jo Workman.

The Department offers work leading to the following degrees: M.A., M.S., M.S. in Ed.

Students working on a master's degree must complete at least 18 hours in Health and Physical Education excluding thesis credit. Programs must also include from this department 443, 497, and at least two of the following: 442, 447, 448. Students pursuing the non-thesis comprehensive examination option must include in their programs 448 or at least two semester hours of credit from 449. University requirements for master's degrees are listed on pages 18-22.

304 *Teaching of Sports* 2 sem. hrs.

Application of psychological and sociological principles to the teaching of selected activities; coaching techniques for advanced players; review of recent research in methods and materials in specific activities.

305 *Teaching of Sports* 2 sem. hrs.

Teaching methods, officiating, organization, selection, and care of equipment, and safety procedures for selected sports usually taught during the spring and summer months.

321 *The Elementary School Physical Education Program* 2 sem. hrs.

Principles and purposes of physical education in elementary schools. Current trends in program planning, recent research, methods of evaluation, school-community cooperation. Prerequisite: Health and Physical Education 221, 222 or 223.

340 *History of Physical Education* 2 sem. hrs.

The relationship, from ancient to modern times, between physical education and factors in society: economic, political, social, educational, and religious.

341 *Organization and Administration of Health and Physical Education* 3 sem. hrs.

Factors essential to the administration and program development of physical education in elementary and secondary schools.

347 *Tests and Measurements in Physical Education* 3 sem. hrs.

Analysis of motor performance, using objective tests, subjective ratings, and achievement tests. Construction and evaluation of knowledge tests. Use of basic statistical concepts for interpreting test scores.

360 *The Teaching of Dance* 2 sem. hrs.

Teaching methods in modern, folk, square, round, and social dance; selection, progression, and grade placement of dance materials in the secondary school and college curriculum; practice in perfecting dance techniques; evaluation of dance skills and knowledges. Prerequisite: Health and Physical Education 160.

361 *History of Dance I* 2 sem. hrs.

The history and development of dance as a social and cultural medium from primitive times through the nineteenth century.

362 *Principles of Performance* 3 sem. hrs.

Principles governing public performance in physical education; dance, swimming, gymnastics, and other physical education activities. A survey of costuming, lighting, accompaniment, and related problems in production.

363 *History of Dance II* 2 sem. hrs.

Dance trends in the twentieth century; their relationships to older cultures and forms of dance and to social patterns of the present; approaches, styles, and contributions of leading dance personalities of the twentieth century. Prerequisite: Health and Physical Education 361.

364 *Musical Analysis for Dance Accompaniment* 2 sem. hrs.

Basic principles of accompanying modern dance; selection of appropriate music, both live and recorded, from traditional and current repertoires, for use with folk, social, and theatre forms of dance; brief history of music and music for dance.

365 *Teaching of the Folk Forms of Dance* 2 sem. hrs.

Methods of teaching the folk and social forms of dance in the secondary school, college, and recreational situation; appraisal of the patterned dances in the traditional and current repertory; sources of curricular materials from dance books, magazines, workshops, clinics, festivals, conventions, institutes, and summer schools and camps; advanced techniques in folk, round, square, and social dance; basic skills in tap dance. Prerequisite: Health and Physical Education 360.

367 *Problems in Dance* 2 sem. hrs.

Current problems in the teaching of dance on all levels, in the administration of dance curricula, in the organization and supervision of dance clubs and extra-curricular activities.

368 *Practicum in Composition* 2 sem. hrs.

Progressive experiences in individual and group composition: in design, rhythm, and dynamics; compositional group works based upon extensive investigation into the subject matter to be communicated. Prerequisite: previous experience in modern dance.

369 *Dance for Children* 2 sem. hrs.

Methods and materials in traditional and creative activities; movement explorations for stunts, tumbling, and games; interrelationships of dance with art, music, drama, science, and other elementary school activities. Prerequisite: Health and Physical Education 162 or 222.

372 *Camp Experience with Physically Handicapped* 3 sem. hrs.

Actual experience as a counselor in a summer camp for physically handicapped children. Conferences and discussions on planning the child's day; general organization of activities, camp equipment, and program. A student may enroll for credit a second time. Prerequisite: Approval of the Director of the Division of Special Education and Head of the Department of Health and Physical Education for Men or Women.

373 *Workshop in Recreation and Camping* 3 sem. hrs.

Preparation of materials for use in recreation and camping situations; sources for obtaining materials and information; cooperative work among various departments and organizations. Includes crafts, music, story telling, and dramatics.

383 *Body Mechanics and Corrective Procedures* 2 sem. hrs.

Methods, materials, and activities appropriate for the body mechanics and adapted physical education program in elementary and secondary schools. Prerequisite: Health and Physical Education 282.

384 *Diagnosis and Treatment of Athletic Injuries* 2 sem. hrs.

Designed to familiarize the coach with symptoms of common athletic injuries, their immediate treatment and care. Prerequisite: Health and Physical Education 182.

385 *Physical Defects—Survey and Rehabilitation* 3 sem. hrs.

Physical defects of handicapped children and procedures used in their rehabilitation. For those preparing to teach special classes of physically handicapped children. Includes special services, equipment, and activities used in the rehabilitation program. Lecture and laboratory. Also offered as Biological Sciences 385. Prerequisite: Health and Physical Education 282.

386 *Physical Education and Recreation for Handicapped Children* 2 sem. hrs.

Materials and methods involved in planning recreational programs for handicapped children and adolescents. Designed primarily for teachers of exceptional children and physical education. Prerequisite: Health and Physical Education 383 or Psychology 346 and 2-3 hrs. from Health and Physical Education 221, 222, 223, 224, or 321.

403 *Problems in Administration of Sports* 3 sem. hrs.

Critical analysis of the current problems that confront the director of physical education in the organization and administration of sports activities with special reference to national, state, and local control.

424 *Supervision of Physical Education* 2 sem. hrs.

Practice in the techniques of supervision of physical education in elementary and secondary schools; in-service training of the classroom and physical education teacher; relationships with teachers, administrators, and community.

442 *Foundations of Modern Physical Education* 3 sem. hrs.

Functions of modern physical education and the underlying factors which influence it.

443 *Problems in Health, Physical Education, and Recreation* 2 sem. hrs.

Consideration of current problems in these fields as they affect the teacher of physical education; guidance in individual and group solution of selected professional problems.

447 *Evaluation in Physical Education* 3 sem. hrs.

Historical background of measurement in physical education; selection and evaluation of available measures; statistical techniques in research; construction and uses of tests; administering the testing program; interpretation and application of results. Prerequisite: Health and Physical Education 347.

448 *Seminar in Health, Physical Education, and Recreation*
2 sem. hrs.

Reports and evaluation of selected research studies; proposed problems and theses plans; review of recent writings; practice in professional discussions and in committee projects.

449 *Selected Studies in Health and Physical Education*
1-6 sem. hrs.

Current problems in the field of health and physical education intensively studied to aid the physical education instructor or athletic coach in adjusting to changing needs of elementary or secondary schools.

472 *Camping Administration* 2 sem. hrs.

Functions and principles of camp administration in organizational and private camps.

475 *Organization and Administration of Recreation* 3 sem. hrs.

Factors concerning the organization and administration of a recreation program; course designed to meet the needs of the administrators of town, community, or school recreational programs.

481 *Applied Physiology* 2 sem. hrs.

Application of human physiology to the teaching of physical education; the effects of exercise on the heart, lungs, circulation, and respiration; discussion of current studies pertinent to tests of physical efficiency.

482 *Mechanical Analysis of Movement* 2 sem. hrs.

Principles of physics applied to body movement; analysis of body positions and modes of locomotion; muscular and mechanical analysis of selected movement skills.

483 *Advanced Corrective Procedures* 2 sem. hrs.

Selected screening and evaluative techniques; applications of recent advances in exercise physiology; individualization of health, exercise, and rest programs; administration of school and college adapted and corrective program; school-community liaison. Prerequisite: Health and Physical Education 383.

491 *Internship-Seminar in College Teaching in Health and Physical Education* 3 sem. hrs.

Credit in this course is given in Education (see Education 491).

497 *Research Seminar* 1-6 sem. hrs.

Introduction to bibliography, methods of scholarly research and the critical evaluation of research in the field. Must be taken by first year graduate students unless the department requires Education 475. May be repeated by more advanced students who desire direction and constructive criticism as they pursue research problems.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

HISTORY

(See Social Sciences)

HOME ECONOMICS

TEACHING STAFF

Head of the Department: Florence Davis. Office: Turner Hall 134.

Professors: Florence Davis, Blossom Johnson.

Associate Professor: Jacqueline Q. Karch.

Assistant Professor: Jeannie James.

The department offers work leading to the following degrees: M.A., M.S., M.S. in Ed. University requirements for the master's degree are listed on pages 18-22.

301 *Evaluation in Home Economics* 2 sem. hrs.

Examination of various concepts of evaluation and basic principles involved. Study of methods and techniques. Opportunity to work on individual problems.

304 *Curriculum Development in Home Economics* 3 sem. hrs.

Principles of curriculum development as applied to home economics. Attention given to organization, methods, materials, and evaluation in relation to type of program and age level. Opportunity to work on individual or group problems.

313 *Food Customs Around the World* 2 sem. hrs.

An appreciation course considering the food customs of other nations and how they have influenced American meal patterns. Includes laboratory preparation.

316 *Food Investigations* 3 sem. hrs.

Opportunity is given the student to do preliminary research into various cookery problems according to needs and interests. Evaluation of present accepted methods is challenged and revised. Prerequisite: Home Economics 111 or 113.

320 *Demonstration Cookery* 2 sem. hrs.

Development of desirable techniques and standards for the use of demonstration method of presentation of food preparation. Critical evaluation of individual and team demonstrations suitable for use in teaching, club work, and adult education classes. Prerequisite: Home Economics 113.

322 *Problems in Clothing* 3 sem. hrs.

Economics of clothing; children's clothing. Advanced construction experiences including pattern making or draping. Prerequisite: Home Economics 124.

323 *Advanced Textiles* 2 sem. hrs.

Survey of recent developments in the textile field, particularly the man-made fibers and their products. Attention is given to the textile market situation's significance to the consumers. Prerequisite: Home Economics 120.

324 *Advanced Costume Design and Draping* 3 sem. hrs.

Theory of design development through draping technique and application to varied figure forms.

401 *Supervision of Student Teaching in Home Economics*

3 sem. hrs.

Critical survey of the objectives of the student teaching program; responsibilities of the supervising teacher, and techniques of supervision. Practical experience in the preparation of supervisory materials.

402 *Seminar in Home Economics* 2 sem. hrs.

Critical investigation of recent literature in the field of home economics and evaluation of pertinent research studies.

406 *Household Equipment* 2 sem. hrs.

Equipment for the modern home and home economics laboratory. Group and individual experiences with various types of labor-saving equipment.

408 *Family and Child Development* 3 sem. hrs.

Fundamental and current problems regarding the child and the family. Students will obtain practice in problem solving and committee projects.

409 *Recent Trends in Home Economics* 2 sem. hrs.

Developments in the field as reflected in more recent practices, survey of methods and materials being used, and review of current professional literature.

410 *Family Housing Problems* 3 sem. hrs.

Current trends and problems in housing with emphasis on family living as related to aesthetic, social, economic, and managerial aspects.

412 *Advanced Home Management* 3 sem. hrs.

Planning, directing, and coordinating of material and human resources in the home. Experiences are provided which enable students to know and use principles basic to modern household processes. Prerequisite: Home Economics 236.

414 *Special Problems in Clothing* 3 sem. hrs.

Individual problems in clothing construction.

416 *Advanced Problems in Food Investigation* 3 sem. hrs.

Experimental study of foods and food preparation. Opportunity for individual and small group investigations.

418 *Selection of Processed Foods* 2 sem. hrs.

Appraisal of processed foods to determine practical utilization of various types. Reports and discussion will be supplemented by field trips and comparative studies in the laboratory. Prerequisite: Home Economics 113.

420 *Advanced Nutrition* 3 sem. hrs.

Current nutrition research as applied to improved dietary planning. Prerequisite: Home Economics 106, 113; Physical Sciences 110.

422 *History of Costume* 3 sem. hrs.

Historical development of textiles and costumes as a background for understanding modern fabrics and styles.

424 *Selected Problems in Home Economics* 1-6 sem. hrs.

May be chosen by the student for investigation in any of the areas of home economics. Approval by the instructor and the head of the department is required. A student may enroll in the course more than once if there is no duplication of material.

426 *Advanced Tailoring* 3 sem. hrs.

Various tailoring techniques. Students tailor garments selected to provide a variety of experiences using those techniques that insure a well-made professional product.

491 *Internship-Seminar in College Teaching in Home Economics*
3 sem. hrs.

Credit for this course is given in Education (see Education 491).

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

INDUSTRIAL ARTS

TEACHING STAFF

Head of the Department: Charles B. Porter. Office: Turner Hall 138.

Professors: William D. Ashbrook, John L. Johnston, Charles B. Porter.

Associate Professors: R. D. Blomgren, F. D. Kagy.

Assistant Professors: Claude Bell, J. E. Talkington, J. E. Hawse.

The department offers work leading to the following degrees: M.S., M.S. in Ed. University requirements for master's degrees are listed on pages 18-22.

300 *Contemporary Industrial Education* 2 sem. hrs.

Prominent leaders and analysis of trends in industrial education.

301 *Industrial Arts in the Elementary School* 2 sem. hrs.

Educational principles underlying industrial arts and their application in the elementary activity program.

302 *Evaluation Techniques in Industrial Education* 3 sem. hrs.

Historical background of measurement in industrial education; examination of objectives and methods; evaluation of student abilities and growth; evaluation of housing and equipment.

303 *Principles of General Shop Organization* 2 sem. hrs.

Organizing and teaching procedures in the multiple-activity shop.

305 *Improvement of Instruction in Industrial Education* 3 sem. hrs.
Objectives, content, and techniques for improving the teaching of industrial arts.

341 *Television Circuits* 3 sem. hrs.

Technical aspects of television systems. Laboratory practice in circuit analysis, testing, and repair of television receivers. Prerequisite: Industrial Arts 242.

373 *Advanced Driver Education* 3 sem. hrs.

Objectives and scope of driver education in the total high school curriculum and the need to relate driver education to a comprehensive community endeavor. Administrative policies and practices, selection, organization, and program evaluation. Laboratory practice includes experience in programing and operating a multiple car off-street program. Prerequisites: Industrial Arts 171 and 272.

374 *Methods and Materials of Teaching Driver Education*
3 sem. hrs.

Materials and measures appropriate for driver education. Development of teaching units, student evaluation procedures peculiar to driver education. Laboratory experience includes programing and teaching beginning drivers in traffic simulators, behind-the-wheel, on the street, and in the classroom. Prerequisite: Industrial Arts 375 or 377, or consent of the instructor.

375 *Traffic Enforcement* 2 sem. hrs.

An intensive survey of the courts, the Division of Motor Vehicle Administration and Enforcement, dealing with the organization and administration of these divisions and specialized areas of accident investigation, court functions and procedures, qualifications and standards for court personnel, driver licensing, safety and financial responsibility laws, and driver improvement. Prerequisite: Industrial Arts 272 or concurrent enrollment.

376 *Problems and Research in Driver Education* 3 sem. hrs.

Overview of problems confronting persons in this field and major research findings applicable to this area. Emphasis is given to gaining a better understanding of research data planning for greater utilization of research findings in both school and community traffic safety endeavors. Prerequisite: Industrial Arts 373 or concurrent enrollment.

377 *Traffic Engineering* 2 sem. hrs.

An investigation of the traffic engineering function relating to the cost of financing road systems. Acquisition of right-of-way, highway geometric design, collection, analysis, and interpretation of accident records, and other data needed to bring about the modification of existing physical features necessary to reduce accidents, to alleviate congestion within an area, and to plan for future needs within a community. Prerequisite: Industrial Arts 272 or concurrent enrollment.

400 *Foundations of Industrial Education* 3 sem. hrs.

Underlying movements and philosophies which have influenced the development of industrial education.

401 *Occupational and Job Analysis* 2 sem. hrs.

Techniques and procedures of analyzing industrial occupations and jobs into their basic elements for instructional purposes.

402 *Organization and Administration of Industrial Education*
3 sem. hrs.

Consideration of the problems confronting the teacher and administrator and the basis for their solution.

403 *Seminar in Industrial Education* 2 sem. hrs.

Critical evaluation of research studies, problems, and thesis plans.

404 *Special Projects in Industrial Education* 3 sem. hrs.

Individual investigation in one or more selected areas of industrial arts. Some laboratory work may be done.

405 *Philosophy of the Practical Arts and Vocational Education*
3 sem. hrs.

Philosophy and principles upon which the practical arts and vocational education are based. Intended to serve administrators and teachers, especially teachers of the practical arts and vocational subjects.

491 *Internship-Seminar in College Teaching in Industrial Education*
3 sem. hrs.

Credit for the course is given in Education (see education 491).

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

LATIN

(See Foreign Languages)

MATHEMATICS

TEACHING STAFF

Head of the Department: Clyde T. McCormick. Office: Schroeder Hall 104.

Professors: Douglas R. Bey, Francis R. Brown, Clyde T. McCormick.

Associate Professors: Leonard F. Bruening, Richard D. Crumley, Troy L. Hicks.

The Department of Mathematics offers graduate work leading to the degrees of Master of Science and Master of Arts. Each student must meet the general University requirements for the degree he seeks, and he must meet the following departmental requirements: (1) Of the 32 semester hours required for the degree, at least 24 must be in approved courses in mathematics, and at least 12 of these in 400 level courses. The remaining 8 hours may be taken in mathematics or, with the approval of the Head of the Mathematics Department, students may elect 8 hours in an outside minor. (2) Two basic year sequences chosen from 312-313, 315-316, 347-348, 350-351 are required. Students are expected to meet at least half of this requirement on the undergraduate level. (3) All candidates for the degree of Master of Science or Master of Arts in Mathematics must pass a comprehensive examination over at least three

areas in mathematics which are included on the current list approved by the Head of the Department, and in one other area, which may be within the department or in a minor field. A thesis is optional.

Students wishing to meet requirements for the secondary or college teaching programs should plan their programs accordingly with their advisers.

The Master of Science in Education degree may be elected by students meeting the undergraduate and graduate requirements listed on page 18.

301 *Mathematical Topics for Elementary Teachers* 3 sem. hrs.

Significant problems, points of view, and trends in the teaching of arithmetic. Investigation of research related to organization, content, and techniques in this field. May not be used to satisfy the requirements for a major, comprehensive major, minor, or a graduate degree in mathematics. Prerequisite: Mathematics 201 or teaching experience.

302 *Mathematical Topics for Junior High Teachers* 2 sem. hrs.

Significant problems, points of view, and trends in the teaching of junior high school mathematics. Discussion of the implication of logic and foundations of mathematics for the teaching of selected topics in junior high school mathematics. May not be used to satisfy the requirements for a major, comprehensive major, minor, or a graduate degree in mathematics. Prerequisite: Mathematics 201 or 202 or teaching experience.

306 *Set Theory* 3 sem. hrs.

Elementary logic; set algebra; relations and functions; axioms for set theory; equivalence; ordinals and cardinals. Prerequisite: Mathematics 116.

308 *Matrix Theory* 2 sem. hrs.

Computational theory of matrices; matrix operations; inversion; solution to linear systems; eigenvalues and eigenvectors. Prerequisite: Mathematics 116.

310 *Number Theory* 2 sem. hrs.

Development of the number system; repeating decimals; congruences; diophantine equations; continued fractions; nonlinear congruences; quadratic residues. Prerequisite: Mathematics 116.

312 *Introduction to Higher Geometry I* 3 sem. hrs.

Foundations of geometry, synthetic projective geometry, and properties of projective spaces. Coordinate systems and postulates of separation. Analytic projective geometry related to synthetic. Affine geometry. Prerequisite: Mathematics 116.

313 *Introduction to Higher Geometry II* 3 sem. hrs.

Euclidean geometry, parallelism, similarity, congruency, directed angles, perpendicularity, the evolution of geometry, constructions, hyperbolic and elliptic geometries. Introduction to topology. Prerequisite: Mathematics 312.

315 *Introduction to Abstract Algebra I* 3 sem. hrs.

Sets and mappings; groups; homomorphisms; quotient groups; the Sylow theorems; rings and ideals; fields; Euclidean rings. Prerequisite: Mathematics 116.

316 *Introduction to Abstract Algebra II* 3 sem. hrs.

Polynomials; vector spaces; extension fields; the beginnings of Galois theory; matrices; the theorems of Wedderburn or Frobenius. Prerequisite: Mathematics 315.

320 *History of Mathematics* 2 sem. hrs.

Development of mathematics in the area of number, form, directness, continuity and application. Some emphasis on recent developments in mathematics. Prerequisite: Mathematics 116.

323 *Mathematics for the Secondary School* 3 sem. hrs.

Current issues in the teaching and learning of mathematics. Problems and points of view in the selection and placement of topics of secondary mathematics. Use of language and symbolism. Analysis of experimental programs, recent trends, and practices in the classroom. Prerequisite: Mathematics 116 or 302.

325 *Finite Mathematical Structures* 2 sem. hrs.

Methods of proof; finite algebra; partition and counting; stochastic processes; matrix algebra; theory of games and linear programming; application to behavioral science problems. Prerequisite: Mathematics 116.

335 *Advanced Calculus* 3 sem. hrs.

Differential calculus of functions of several variables; vector differential calculus; integral calculus of functions of several variables; vector integral calculus; infinite series. Prerequisite: Mathematics 116.

340 *Differential Equations* 3 sem. hrs.

First order ordinary differential equations; linear differential equations; existence theorems and numerical methods of solution. Use of analog computers. Prerequisite: Mathematics 116.

345 *Vector Analysis* 2 sem. hrs.

The dot and cross product; vector differentiation; gradient, divergence, and curl; vector integration; the divergence theorem, Stokes' theorem, and related integral theorems; curvilinear coordinates. Prerequisite: Mathematics 116.

347 *Introduction to Real Analysis I* 3 sem. hrs.

Sequences and series of real numbers; continuity; metric space topology; the Riemann Integral; the fundamental theorems of calculus. Prerequisite: Mathematics 116.

348 *Introduction to Real Analysis II* 3 sem. hrs.

The elementary functions; sequences and series of functions; the Lebesgue Integral. Fourier Series. Prerequisite: Mathematics 347.

350 *Mathematical Statistics I* 3 sem. hrs.

Sample spaces and random variables; frequency functions; linear functions of random variables; nature of statistical functions; moment generating function and application to standard frequency functions. Prerequisite: Mathematics 116.

351 *Mathematical Statistics II* 3 sem. hrs.

Correlation and regression equations; development of Chi-square; student's t and F distributions; likelihood ratio tests; analysis of variance and nonparametric methods. Prerequisite: Mathematics 350.

365 *Mathematical Logic* 3 sem. hrs.

Propositional calculus; independence; many-valued logics; interpretations; satisfiability and truth; first-order theories; consistency and completeness theorems. Prerequisite: Mathematics 116.

366 *Boolean Algebra and Logical Design* 3 sem. hrs.

Switching Circuits; Boolean Algebra as a model for propositional calculus; use of diagrams as an aid to logical design; logical design of digital computers; Laboratory experience with logical programing. Prerequisite: Mathematics 116 (laboratory arranged).

368 *Principles of Digital Computers* 3 sem. hrs.

Fundamental concepts of programing; FORTRAN II language; basic machine language; experience in writing and running programs on a digital computer. Prerequisite: Mathematics 116 (laboratory arranged).

370 *Numerical Analysis* 2 sem. hrs.

Interpolation and approximation; error analysis; integration; techniques for solving differential equations; Newton's method; matrix manipulation. Prerequisite: Mathematics 116, 368 or computer experience.

412 *Projective Geometry* 3 sem. hrs.

Emphasis on fundamentals common to all geometry. Topics include a study of invariance under a variety of transformations giving rise to projective, affine and metric geometries. Use is made of homogeneous point and line coordinates in "n" dimensional space. Prerequisite: Mathematics 312.

415 *Modern Algebra* 3 sem. hrs.

Semigroups and groups; homomorphisms and factor groups; the isomorphism theorems; solvable groups; elements of the structure theory of rings including the Jacobson radical; lattices. Prerequisite: Mathematics 315.

421 *Topics in Algebra for Teachers* 3 sem. hrs.

Problems in the teaching of secondary school algebra. Investigation of reports, research and recent trends in this area. Opportunity for study of particular problems of individual interest. Prerequisite: Mathematics 251 or 315.

422 *Topics in Geometry for Teachers* 3 sem. hrs.

Problems in the teaching of secondary school geometry. Investigation of reports, research, and recent trends in this area. Special emphasis is given to the objectives and content of secondary school geometry. Opportunity for the study of particular problems of individual interest. Prerequisite: Mathematics 211 or 312.

445 *Differential Geometry* 3 sem. hrs.

The theories of curves and surfaces in three-dimensional Euclidean space; local intrinsic and non-intrinsic properties of a surface; a differential geometry in the large; differential geometry of "n" dimensional space; tensor analysis; Riemannian geometry. Prerequisites: Mathematics 312 or 345, and Mathematics 251 or 315.

450 *Finite Sampling* 3 sem. hrs.

Application and theory of sampling. Mathematical sampling: simple, stratified, and cluster. Evaluating sampling plans with respect to precision and cost. Prerequisite: Mathematics 350.

470 *General Topology I* 3 sem. hrs.

Topological spaces; uniform spaces; product and quotient spaces; separation properties and connected spaces; compact spaces. Prerequisites: Mathematics 315 and 347.

480 *Foundations of Mathematics* 3 sem. hrs.

The linear continuum and the real number system; groups and their significance for the foundations; the reduction of mathematics to a logical form; the Frege-Russell thesis; calculus of propositions; intuitionism and formalism. Prerequisites: Mathematics 312, 315, 347; or consent of instructor.

490 *Seminar in Mathematics* 1 to 4 sem. hrs.

Topics in theoretical and applied mathematics discussed by staff and visiting lecturers; individual study and student papers. The student may enroll in the seminar for credit more than once if the subject matter is not duplicated and the total credit earned does not exceed eight semester hours. Prerequisites: Mathematics 312, 315, 347; or consent of instructor.

491 *Internship-Seminar in College Teaching in Mathematics*
3 sem. hrs.

Credit for the course is given in Education (see education 491). Prerequisites: Mathematics 312, 315, 347; or consent of instructor.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

MICROBIOLOGY

(See Biological Sciences)

MUSIC

TEACHING STAFF

Head of the Department: Howard H. Rye. Office: Centennial Building, East 155B.

Professors: Leslie M. Isted, Harlan W. Peithman, Howard H. Rye, Irwin Spector.

Associate Professors: John W. Ferrell, James L. Roderick, Herbert C. Turrentine, Lyle M. Young.

Assistant Professor: Lawrence G. Rickert.

The department offers work leading to the following degrees: M.S., M.S. in Ed. University requirements for these degrees are listed on pages 18-22.

301 *Form and Analysis in Music* 2 sem. hrs.

Structure of classical music ranging from simpler compositions as found in piano works to more elaborate material as found in major sonatas and symphonies.

305 *Composition* 3 sem. hrs.

Free composition in larger forms with opportunities for performance of original works for voices, instrumental combinations, or full orchestra.

309 *Orchestration* 3 sem. hrs.

Review of instruments: ranges, timbres, technical difficulties and limitations. Arranging for combinations of instruments, full band and orchestra. Study of problems contained in standard repertory. Special attention to problems of school band and orchestra scoring.

351 *The Opera* 2 sem. hrs.

Historical development of the opera with emphasis on stylistic elements and trends of various periods. Study of the plots and music through recordings, piano scores, full scores, as well as live performances.

361 *Instrumental Techniques* 3 sem. hrs.

Problems and procedures in developing instrumental classes and organizations.

363 *Choral Techniques* 2 sem. hrs.

Clinical aspects of the chorus rehearsal, contemporary choral practices, repertory and source material, interpretation and program building. Prerequisite: course in conducting or practical experience.

366 *Tonal Measurement* 3 sem. hrs.

Physical measurement of musical tone in relation to the problems in the classroom, the rehearsal, and the performance.

371 *Music for the Exceptional Child* 3 sem. hrs.

Trends in musical education for exceptional children. Techniques and materials for a functional program of singing, playing, listening, and creative activities based upon needs of the exceptional child.

377 *Music Education in the Elementary Grades* 3 sem. hrs.

An advanced course dealing with the purposes, content, materials and teaching procedures in general music classes in elementary schools and including supervisory practices, in-service workshops and curriculum planning. Designed to meet the needs of music resource persons in elementary education, elementary classroom teachers, music teachers, and music supervisors. Students must have had a prior course comparable in content to Music 277 or Music 262.

384 *Opera Production* 3 sem. hrs.

Operas and operettas including the problems of presenting high school and college productions. Members of the class participate in the production of an opera or operetta. Prerequisite: approval of the Head of the Department of Music.

400 *Seminar in Music Education* 3 sem. hrs.

Individual and group study of trends, practices, and problems in the field of music education.

402 *Form and Analysis in Music* 3 sem. hrs.

Continuation of Music 301 with emphasis on harmonic structure.

404 *Chromatic Harmony* 3 sem. hrs.

Practical experience in writing polyphonically and homophonically using various kinds of embellishments and chromatically altered tones. A major creative project is required. This may be in the form of an original composition, arrangement, or transcription.

431 *Applied Music—Brass* 1 or 2 sem. hrs.

Individual instruction on trumpet, cornet, French horn, trombone, baritone, and tuba. This course may be repeated for credit.

433 *Applied Music—Organ* 1 or 2 sem. hrs.

Individual instruction on organ. This course may be repeated for credit.

435 *Applied Music—Piano* 1 or 2 sem. hrs.

Individual instruction on piano. This course may be repeated for credit.

436 *Applied Music—Strings* 1 or 2 sem. hrs.

Individual instruction in violin, viola, cello, stringed bass. This course may be repeated for credit.

437 *Applied Music—Voice* 1 or 2 sem. hrs.

Individual instruction in voice. This course may be repeated for credit.

438 *Applied Music—Woodwinds* 1 or 2 sem. hrs.

Individual instruction in flute, clarinet, oboe, bassoon, and saxophone. This course may be repeated for credit.

452 *The Symphony* 3 sem. hrs.

Survey of the symphony orchestra and symphonic literature from early eighteenth century to the present day. Study through recordings, orchestral scores, and piano scores.

453 *Problems in Music History* 3 sem. hrs.

A systemization of practices leading to the development of historical research and other techniques of investigation. A study of source materials, analytical procedures, and selected readings with certain specific topics studied as exercises. Students will work in areas of personal interest. A reading knowledge of a foreign language is desirable.

454 *History of Musical Instruments* 2 sem. hrs.

Evolution of musical instruments from the origins to the present, with particular regard to music and general culture. The development of primitive, Oriental, and western instruments.

455 *Music in America* 3 sem. hrs.

Indigenous and borrowed influences in American music from the time of the early settlements through periods of expansion to present day activities. A background of American musical style and culture and an understanding of present trends will be developed.

460 *Psychology of Music Education* 3 sem. hrs.

Investigation of the psychological attributes of sound and their effects upon the behavior of the human organism.

462 *Tests and Measurements in Music* 3 sem. hrs.

Bases upon which aptitude and achievement in music have been and may be measured.

463 *Experimental Studies* 3 sem. hrs.

Experimental method as applied to problems of music learning, including a survey of research of music education and related areas. An individual experimental term project will be required.

464 *Teaching of Theory* 2 sem. hrs.

Analysis of current practices in the teaching of theory; techniques of teaching theory during the regular rehearsal of performing groups, and an analysis of source material. Project: the development of a practical course in theory as it relates to the student's own teaching situation. Prerequisite: teaching experience or advanced standing in theory.

465 *Sensory Integration in Music Learning* 2 sem. hrs.

Practical considerations necessary for the operation and use in the classroom of audio-visual aids to music learning.

468 *Conducting* 2 sem. hrs.

Critical examination of scores with reference to tempo, phrasing, nuance, balance, timbre, and baton techniques involved. For experienced teachers.

491 *Internship-Seminar in College Teaching in Music* 3 sem. hrs.

Credit for the course is given in Education (see education 491).

497 *Research Seminar* 3 sem. hrs.

Introduction to bibliography, methods of scholarly research and critical evaluation of research. Must be taken by first year graduate students in the secondary curriculum unless the department requires Education 475. May be repeated by more advanced students who desire direction and constructive criticism as they pursue a special research problem.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

PHYSICAL EDUCATION

(See Health and Physical Education)

PHYSICAL SCIENCES

TEACHING STAFF

Head of the Department: Bernard L. Ryder. Office: Science Building 426.

Professors: DeVerne H. Dalluge, G. Harlowe Evans, Esther M. Griffith, Bernard L. Ryder.

Associate Professors: Harold J. Born, Leonard E. Brady, John E. Crew, Robert C. Duty, Raymond H. Hunt, Thaddeus C. Ichniowski.

Assistant Professor: Richard C. Reiter.

The department offers work leading to the following degrees: M.S., M.S. in Ed. University requirements for these degrees are listed on pages 18-22.

GENERAL COURSES

301 *Problems in the Teaching of High School Physical Sciences* 3 sem. hrs.

A study of modern methods and problems confronting the teachers of Physical Science. Involves a careful study of CBA, Chem Study, PSSC, and regular high school chemistry and physics. Brief overview of the K-12 physical science program will be undertaken.

325 *General Science* 3 sem. hrs.

Objectives of general science. Selection of subject matter, tests, texts, workbooks, equipment, and supplies will be considered. For teachers qualified to teach general science in the elementary, junior high, and senior high schools.

332 *Municipal and Industrial Science* 3 sem. hrs.

Specific aspects of community and industrial problems. Includes trips to industries and research laboratories. Lectures and discussion periods involving related chemical and physical principles are coordinated with the field trip program. Gives a background in applied science as an enrichment for classroom teaching. Prerequisite: Twenty-two hours of physical sciences including one year of general chemistry, one year of general physics, and two 200- or 300-level courses in chemistry or physics.

491 *Internship-Seminar in College Teaching in the Physical Sciences* 3 sem. hrs.

Credit for the course is given in Education (see education 491).

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

CHEMISTRY

300 *Modern Aspects of Chemistry* 3 sem. hrs.

Modern aspects of chemistry, with emphasis on recent developments in the area of atomic structure. Lecture and laboratory. Designed for teachers of elementary science with limited background in the area of chemistry. Not open to students who have had one semester of college laboratory chemistry within the past ten years, or with first or second fields in chemistry, physics, and the physical sciences. Prerequisite: Physical Sciences 100 or 225, or two years of teaching experience.

331 *Topics in Contemporary Chemistry* 3 sem. hrs.

New concepts and recent developments in the fields of organic, inorganic, and analytic chemistry. Prerequisite: Physical Sciences 231 and 336.

333 *History of Chemistry* 2 sem. hrs.

Development of chemistry from early times to the present. Prerequisite: 16 semester hours of chemistry.

334 *Chemical Literature* 2 sem. hrs.

Introduction to chemical literature in journals, handbooks, abstracts, monographs, and patents. Problems requiring literature searches in all fields of chemistry. Prerequisite: Twenty semester hours of chemistry.

335 *Laboratory Instrumentation* 3 sem. hrs.

Lecture-Laboratory. Instruments used in chemical analysis. Applications to qualitative and quantitative analyses will be stressed in the laboratory. Not open to chemistry majors—see Chemistry 345. Prerequisite: Ten semester hours of chemistry.

336 *Organic Chemistry* 3 sem. hrs.

Chemistry of organic compounds with emphasis on unifying mechanistic features of organic reactions. Prerequisite: Chemistry 240 or permission of department.

337 *Organic Chemistry Laboratory* 2 sem. hr.

Laboratory practice in newer techniques and methods of organic chemistry. Two three-hour laboratory periods per week. Prerequisite: Prior or simultaneous registration in Chemistry 336 or permission of the department.

338 *Physical Chemistry* 3 sem. hrs.

First in a series of theoretical chemistry dealing with gases, liquids, solutions, thermochemistry, thermodynamics, chemical and phase equilibrium, kinetic theory, and chemical kinetics. Prerequisites: One year of general physics; one year of general chemistry; eight semester hours of chemistry courses numbered 200 or higher; Mathematics 116.

339 *Physical Chemistry Laboratory* 1 sem. hr.

Laboratory studies of the derivations and applications of the principles treated in physical chemistry. One three-hour laboratory period per week. Prerequisite: Physical Sciences 338 or concurrent registration.

340 *Physical Chemistry* 3 sem. hrs.

Continuation of Physical Sciences 338, including ionic equilibrium, electrical conductance, electromotive force, photo chemistry, spectroscopy, crystals, molecular theory. Prerequisite: Physical Sciences 338.

341 *Physical Chemistry Laboratory* 1 sem. hr.

Laboratory studies of the derivations and applications of the principles treated in physical chemistry. One three-hour laboratory period per week. Prerequisite: Physical Sciences 340 or concurrent registration.

342 *Introduction to Biochemistry* 4 sem. hrs.

Chemistry of proteins, carbohydrates, nucleic acids, vitamins, enzymes; their degradation, formation, and associated energy changes in biological processes. Four class meetings per week including one three-hour laboratory period. Prerequisite: Physical Sciences 231 and 113 or 240.

343 *Inorganic Chemistry* 3 sem. hrs.

A discussion of the descriptive chemistry of families of elements based on modern theory. Prerequisite: Physical Sciences 340.

344 *Qualitative Organic Analysis* 3 sem. hrs.

Identification of organic compounds. Three class meetings per week including two three-hour laboratory periods. Prerequisite: Physical Sciences 336.

345 *Instrumental Methods of Analysis* 3 sem. hrs.

A survey of instrumental methods of chemical analysis including electrometric, spectrophotometric, and optical procedures. Prerequisite: Physical Sciences 340 or concurrent registration.

420 *Quantum Chemistry* 3 sem. hrs.

An introduction to the methods of obtaining exact and approximate solutions to the Schrodinger equation, and the use of these solutions in the description of atomic and molecular systems. Prerequisites: Physical Chemistry 341, Mathematics 340.

422 *Chemical Thermodynamics and Introduction to Statistical Thermodynamics* 3 sem. hrs.

An expansion of the introduction to chemical application of Thermodynamics given in Physical Chemistry 340, and an introduction to the methods and results of application of the theorems of statistical mechanics to molecular models. Prerequisite: Physical Chemistry 420.

430 *Special Topics in Biochemistry* 3 sem. hrs.

Advanced study in selected areas of biochemistry, proteins and nucleic acids; carbohydrates and lipids. May be repeated for credit in consecutive years as different topics are introduced. Prerequisite: Chemistry 342.

434 *Seminar in Chemistry* 1 sem. hr.

Survey of current work in chemistry both in pure research and in the application of newer theories of chemistry to the teaching of chemistry on the secondary and college levels.

435 *Seminar in Chemistry* 1-2 sem. hrs.

Survey of current work in selected areas of chemical research. May be repeated for credit for a total of two semester hours.

440 *Electronics for Scientists* 3 sem. hrs.

Circuits of scientific instruments, electronic principles, servo systems, comparison measurements, operational amplifiers, feedback control, digital circuits, transistors, and vacuum circuits. Two three-hour laboratories and one lecture per week. Prerequisite: Physical Sciences 345, or graduate status in physics.

441 *Advanced Inorganic Chemistry* 3 sem. hrs.

Interpretation and discussion of the subject matter of inorganic chemistry from the viewpoint of modern theory. Prerequisite: Physical Sciences 340.

442 *Inorganic Preparations* 1 to 3 sem. hrs.

Preparation of typical inorganic compounds illustrating special and more advanced techniques. May be repeated for credit up to a maximum of 3 semester hours. Three hours of laboratory and conference per week for each hour of credit. Prerequisites: Physical Sciences 231 and 336, or concurrent registration.

443 *Advanced Organic Chemistry* 3 sem. hrs.

An advanced study of organic chemistry including organic reaction mechanisms, synthesis stereo-chemistry, carbocyclic and heterocyclic compounds. Prerequisite: Physical Sciences 336.

444 *Organic Preparations* 2 to 3 sem. hrs.

Synthesis of organic compounds with emphasis on techniques and procedures frequently applied in synthetic work. One hour of lecture and one or two three-hour laboratory periods per week. Prerequisites: Physical Sciences 231 and 337.

PHYSICS

350 *Modern Aspects of Physics* 3 sem. hrs.

Modern aspects of mechanics, heat, light, sound, electricity, and atomic physics. Designed for teachers of elementary science with limited background in the area of physics. Not open to students who have had one semester of college laboratory physics within the past ten years, or with first or second fields in chemistry, physics, and the physical sciences. Prerequisite: Physical Sciences 100 or 225, or two years of teaching experience.

384 *Introduction to Quantum Mechanics* 3 sem. hrs.

Mathematical formulation of quantum theory and applications to simple systems. Prerequisites: Physical Sciences 284 and Mathematics 340.

385 *Mechanics* 3 sem. hrs.

A continuation of Mechanics 280 with emphasis on accelerated coordinate systems, Lagrange's equations, rigid body motion on three dimensions, Hamilton's equations, and theory of small vibrations. Prerequisites: Physical Sciences 280 and Mathematics 340.

386 *Electricity and Magnetism* 3 sem. hrs.

Maxwell's equations and boundary value problems, alternating currents, electronics, radiation and propagation of electromagnetic waves. Prerequisites: Physical Sciences 280, 282, and Mathematics 340.

387 *Modern Physics* 3 sem. hrs.

The photon, electromagnetic radiation, neutrons and nuclear forces, radio activity and detection, nuclear reactions, elementary particles, and high energy physics. Prerequisite: Physical Sciences 284.

480 *Advanced Electricity and Magnetism* 3 sem. hrs.

Maxwell's equations; scalar, vector potentials; dielectrics and conductors; Maxwell's theory of the electromagnetic field. Prerequisite: Physical Sciences 386.

481 *Introduction to Solid State Physics* 3 sem. hrs.

Description and classification of crystals, with an explanation of their elastic, electric and magnetic, electronic and optical properties. Prerequisite: Twelve semester hours of physics numbered 200 or higher.

482 *Advanced Mechanics* 3 sem. hrs.

Reference frames and their transformations; dynamics of particles and system of particles; dynamics of rigid rotators; Hamilton's principle; Lagrange's equations; introductory elasticity and fluid dynamics. Prerequisite: Physical Sciences 385.

483 *Graduate Laboratory* 1-3 sem. hrs.

Techniques and experiments in areas of modern physical research. May be repeated for a total of three semester hours of credit, but no more than two semester hours may be earned per registration. Prerequisite: Consent of the Head of the Department.

484 *Advanced Modern Physics* 3 sem. hrs.

A review of the revisions of classical physics made necessary by experimental evidence. Principles of the structure of matter interpreted in terms of the Schrodinger equation. Selected related topics from the fields of atomic, molecular, nuclear, and solid-state physics. Prerequisite: Fifteen semester hours of 200- or 300-level physics courses including Physical Sciences 387.

485 *Nuclear Physics* 3 sem. hrs.

Properties of nuclei, radioactivity, nuclear interactions, nuclear models, conservation laws and symmetry principles, and elementary particles. Prerequisite: Physical Sciences 387.

486 *Theoretical Physics* 3 sem. hrs.

Selected topics in the mathematical techniques needed for graduate physics and applications of these techniques to mechanics, electricity and magnetism, and relativity. Prerequisites: Mathematics 340, Physical Sciences 280, 282, plus one 300-level course.

PHYSICS

(See Physical Sciences)

POLITICAL SCIENCE

(See Social Sciences)

PSYCHOLOGY

(See Education and Psychology)

SOCIAL SCIENCES

TEACHING STAFF

Head of the Department: Benjamin J. Keeley. Office: Schroeder Hall 338.

Professors: Helen M. Cavanagh, Alice L. Ebel, Alice M. Eikenberry, Benjamin J. Keeley, Helen E. Marshall, Vernon C. Pohlmann, Earl A. Reitan, Theodore Sands, Lucy L. Tasher.

Associate Professors: Roger J. Champagne, Warren Harden, Fred Kohlmeier, Walter S. G. Kohn, Mark A. Plummer, Douglas Poe.

Assistant Professors: Kenneth K. Marcus, Harvey Zeidenstein.

The department offers work leading to the following degrees: M.A., M.S., M.S. in Ed. University requirements for these degrees are listed on pages 18-22. Departmental requirements are as follows:

MASTER'S DEGREE IN THE SOCIAL SCIENCES

A flexible program permitting specialization in either economics, political science, or sociology. As an alternative a student may elect an interdisciplinary program including courses in two or possibly three of the social sciences (economics, history, political science, sociology). A thesis is required.

MASTER'S DEGREE IN HISTORY

Courses are taken in history and such related fields as the student's adviser recommends. Each student must earn at least five graduate hours of course work in an historical field other than his major historical field (for example, U. S. History, European History, or some other history field). A thesis is required.

GENERAL COURSES

306 *Regional and Area Studies* 1 to 9 sem. hrs.

An intensive study of particular lands, environments, cultures, and peoples. May be given in cooperation with other departments, on or off campus. The areas to be studied, participating departments, and credit hours available in the several departments, will be announced each time the course is offered.

491 *Internship-Seminar in College Teaching in the Social Sciences* 3 sem. hrs.

Credit for the course is given in Education (see education 491).

497 *Research Seminar* 1-6 sem. hrs.

Introduction to bibliography, methods of scholarly research and the critical evaluation of research in the field. Must be taken by first year graduate students unless the department requires Education 475. May be repeated by more advanced students who desire direction and constructive criticism as they pursue special research problems.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

ECONOMICS

370 *Transportation* 3 sem. hrs.

Development of railway, waterway, air, and highway transportation. Considerable attention is given to the major problems growing out of increased traffic and its regulation. Major emphasis on contemporary conditions and problems. Prerequisite: Social Sciences 171.

371 *Intermediate Economic Theory* 3 sem. hrs.

Intense and critical examination of the economic theory underlying the operation of a system of free enterprise. Prerequisite: Social Sciences 171.

375 *Public Finance* 3 sem. hrs.

Governmental expenditure and income with emphasis upon the continuous expansion of federal expenditures and problems growing out of that situation. Prerequisite: Social Sciences 171.

377 *Selected Studies in Economics* 3 sem. hrs.

The field of study covered will vary each semester according to the interests and needs of the students and the availability of instructors. Provided different material is covered, the course may be taken more than once. Prerequisite: Social Sciences 171.

378 *History of Economic Thought* 3 sem. hrs.

Economic thought and theory from ancient to modern times. Emphasis on those ideas which influenced the economic development of western civilization. Prerequisite: Social Sciences 171.

379 *International Economics* 3 sem. hrs.

Designed to give such basic aspects of the international economy as the reasons for trade, the terms of trade, and the adjustments necessary to achieve the highest possible plane of living. Particular emphasis on the tariff issue and the purposes and functions of the international financial institutions now extant. Prerequisite: Social Sciences 171.

472 *International Economic Analysis* 3 sem. hrs.

An analysis of the adjustments in the balance of payments among countries. The mechanisms through which income effects, price effects, and changes in commercial policy may restore equilibrium to the balance of payments of a country. The extent to which these forces are automatic or managed is also considered. Prerequisite: Economics 379.

473 *Contemporary Monetary Theory* 3 sem. hrs.

Advanced study of the role of money in an economy. The effects of changes in the quantity of money and its velocity of turnover on employment, income, consumption, and price levels. A comparison of the flexible version of the quantity theory with the national income theory. Implications of these theories to monetary policy. Prerequisite: Economics 273.

475 *Theory of Public Finance* 3 sem. hrs.

Detailed examination of the various concepts of equity in taxation. Development of the theory of tax shifting. Consideration of various criteria for government spending. Evaluation of fiscal policy stabilization tools. Analysis of the burden, economic effects, and possibilities of retirement of the public debt. Prerequisite: Economics 375.

476 *Survey of Current Economics* 3 sem. hrs.

For mature students who need an understanding of the basic tools of economic analysis. Compresses into a single semester matters ordinarily covered in two semesters of Economic Principles. Enrollment is limited to graduate students who have had no more than one semester of previous study in economics, or consent of the instructor.

479 *Graduate Readings in Economics* 1-3 sem. hrs.

For the graduate student who would benefit from a more specialized independent type of study adapted to his background and needs. To be taken by permission of the head of the department and the instructor involved.

HISTORY

321 *History of the Middle East I* 3 sem. hrs.

A political, cultural, social and economic survey of the Middle East from Muhammed to the Ottoman Empire, with emphasis on the origins, development and achievements of the Islamic Age. Prerequisites: Social Sciences 123 and 124 or Social Sciences 128.

322 *History of the Middle East II* 3 sem. hrs.

A political, cultural, social and economic survey of the Middle East from the Ottoman Empire to the present, with emphasis on the decay of Islamic civilization and the rise of nationalism in the modern Middle East. Prerequisites: Social Sciences 123 and 124 or Social Sciences 128.

323 *Economic and Social History of the Middle Ages* 3 sem. hrs.

Medieval agriculture, trade, industry, and towns.

324 *Selected Studies in European History* 3 sem. hrs.

The field of study will vary each semester according to the interests and needs of the students and the availability of instructors. Provided different material is covered, the course may be taken for credit more than once.

328 *Europe in the 19th Century: 1815-1914* 3 sem. hrs.

Liberalism, nationalism, democracy, militarism, imperialism, and the forces that led to World War I.

329 *Contemporary World History* 3 sem. hrs.

An investigation of the forces of change in the contemporary world. The causes and nature of W.W. I, W.W. II, and the Cold War; Communism, Fascism; impact of industrialization, science, and liberalism; emergence of new nations in Asia and Africa.

331 *Lincoln: The Man and His Times* 2 sem. hrs.

Emphasis on the use of biography and collections of Lincoln materials, both private and public. Attention directed especially toward the work of Lincoln in Illinois, his leadership during the Civil War, and his relationships with men and events of his time.

332 *History of American Diplomacy* 2 sem. hrs.

The history of the diplomatic activities of American government. A presentation and interpretation of official papers and documents as well as personalities in American diplomacy.

333 *History of the Mississippi Valley* 3 sem. hrs.

Study in regionalism. Emphasis on the frontier, population movements, natural resources, and unique economic, political, and social development.

337 *The United States and the Twentieth Century* 2 sem. hrs.

Social, intellectual, political, and economic history of the age of giant industry and international finance; progressive reform and conservative reactions; depression and social experiment; world conflict and the assumption of international responsibilities.

338 *Selected Studies in American History* 3 sem. hrs.

The field of study will vary each semester according to the interests and needs of the students and the availability of instructors. Provided different material is covered, the course may be taken for credit more than once.

346 *Selected Studies in the History of Asia* 2 sem. hrs.

The field of study will vary each semester according to the interests and needs of students and the availability of instructors. Providing different material is covered, the course may be taken for credit more than once.

421 *Constitutional History of the United States 1607-1865*
3 sem. hrs.

The historical emergence of federalism and the development of democratic ideas in our system. Attention is directed to the impact upon our history of social and economic changes in producing a living constitution.

424 *Seminar in European History* 2 sem. hrs.

Emphasizes methods and materials of research, and the writing of research papers. General area of study investigated in the seminar will vary each semester according to the special competence of the instructor and the research materials available. Provided different material is studied, the course may be taken for credit more than once.

428 *History of American Agriculture* 3 sem. hrs.

American agriculture from colonial times to the present. Emphasis on changing farm patterns, efforts to solve production problems, farm organizations and governmental policies.

435 *Research Problems in Local History* 3 sem. hrs.

Intensive study of a problem connected with the political, cultural, and social development of Illinois. For advanced students.

438 *Cultural History of the United States I* 3 sem. hrs.

American progress in the fine arts, philosophy, literature, and science, and refinement in tastes and manners. Special note is taken of sectional variations and the impact of immigration, urbanization, and industrialization upon the nation's cultural growth.

439 *Cultural History of the United States II* 3 sem. hrs.

The impact of sectionalism, industrialism, urbanization, immigration, the changing role of women, transportation, and communication upon American culture since 1860.

440 *Seminars in American History* 2 sem. hrs.

Offerings: Early American History, The Middle Period, Reform Movement, The Coming of the Civil War, Economic History, Makers of American History, and Recent American History. Provided different material is studied, the course may be taken for credit more than once.

443 *Readings in History* 1-3 sem. hrs.

For the student in residence who, for approved reasons, cannot fit a specific course into his graduate program. The consent of the student's academic adviser is required.

POLITICAL SCIENCE

351 *American Constitutional Law* 3 sem. hrs.

Analysis and discussion of leading cases interpreting the United States Constitution with consideration given to the political and economic conditions underlying the decisions.

353 *Political Parties* 2 sem. hrs.

American party system as to its development, organization, and activities. Emphasis upon a realistic constructive knowledge of present-day parties.

356 *American Political Thought* 2 sem. hrs.

The main ideas of American political theory from the colonial period to the present time. Special emphasis will be given to current discussion among political scientists as to the nature of the discipline and the role of theory in it.

358 *Political Systems: Theory and Practice* 2 sem. hrs.

The origin, theory, and practice of constitutional democracies and of totalitarian regimes. The democratic challenge to dictatorships. The autocratic challenge to constitutionalism. Provided different material is covered, the course may be taken for credit more than once.

450 *Readings in Political Science* 1-3 sem. hrs.

A course for the graduate student who would benefit more from a specialized independent type of study adapted to his background and needs. To be taken by permission of the head of the department and the instructor involved.

454 *Selected Studies in American Government* 3 sem. hrs.

National, state, and local governments. Will vary from one semester to another according to the interests and needs of students and availability of instructors. Provided different material is covered, the course may be taken for credit more than once.

455 *Political Thought* 3 sem. hrs.

Intensive study of some of the most important authors of political ideas—Plato, Aristotle, Machiavelli, Hobbes, Locke, Montesquieu, Rousseau, Jefferson, Marx, Mill. Their impact on our modern world.

457 *Seminar in Public Administration* 3 sem. hrs.

Advanced study for graduate students interested in special research projects in the field of public administration. Provided different material is covered, the course may be taken for credit more than once. Admission to seminar by consent of the instructor.

458 *Selected Studies in Foreign Governments and International Organizations* 3 sem. hrs.

Intensive study of particular national or international systems and structures. The general field covered in this course will vary according to the interests and needs of the students and the availability of instructors. Provided different material is covered, the course may be taken for credit more than once.

SOCIOLOGY AND ANTHROPOLOGY

365 *Juvenile Delinquency* 3 sem. hrs.

Delinquency as a social and legal problem; theories of delinquency, causation; the juvenile court; prevention and treatment. Prerequisite: Sociology 106.

366 *Contemporary Social Movements* 2 sem. hrs.

Analysis of social unrest as indicative of social disorganization; patterns of collective behavior; structure and functions of social movements. An examination of various types of social movements—religious, political, revolutionary, youth, agrarian, and reform. Analysis of morale, strategy, types of leaders, and control mechanisms.

367 *Criminology* 3 sem. hrs.

Intensive study of the causes of crime and delinquency, together with the recognition, detection, and prevention of criminal acts. Attention given to roles to be assumed by contemporary institutions in preventing crime; also to the evolution of penology and current practices in penal care.

368 *Public Opinion and Propaganda* 3 sem. hrs.

Basic implications, modern techniques, and current machinery of communication. Control exercised by the folkways, government, business, religion, motion pictures, radio, and education. Special attention is focused on those phases of the material which are related to the work of the school. May be considered political science as well as sociology.

369 *Selected Studies in Sociology* 3 sem. hrs.

The field of study will vary each semester according to the needs and interests of students and the availability of instructors. Provided different material is covered, the course may be taken for credit more than once.

381 *Cultural Anthropology* 2 sem. hrs.

Examination of family life, economic organization, religion, folklore, social organization, government, language, education, inventions, and art forms of pre-literate people.

383 *Selected Studies in the Cultures of Africa* 2 sem. hrs.

Concentrated study of cultural patterns of selected groups in Africa. Introduction to the physical characteristics and history of the aboriginal African peoples and study of their social, political, and intellectual life. An analysis of the dynamics of culture change together with the human problems resulting from these changes. Prerequisite: Social Sciences 106, 166, or 181.

384 *Selected Studies in Anthropology* 3 sem. hrs.

The field of study will vary each semester according to the needs and interests of the students and the availability of instructors. Provided different material is covered, the course may be taken for credit more than once.

461 *Readings in Sociology and Anthropology* 1-3 sem. hrs.

A course for the graduate student who would benefit more from a specialized independent type of study adapted to his background and needs. To be taken by permission of the head of the department and the instructor involved.

463 *Child Welfare Services* 3 sem. hrs.

Examination of policies, personnel, facilities, and practices for the care of dependent, neglected, delinquent, physically-handicapped, and mentally-retarded children. Consideration given to adoptive procedures, foster-home placements, probation, parole, and vocational placements.

465 *Sociology of Formal Organization* 3 sem. hrs.

Analysis of the theory of social groups with special emphasis on formal, complex, and bureaucratic organizations; emergence of informal patterns.

466 *Social Theory* 3 sem. hrs.

Social theorists and their theories—Comte, Cooley, Durkheim, Giddings, Gumpłowicz, Le Bon, Ratzenhofer, Ross, Small, Spencer, Sumner, Tarde, Thomas, and Ward—will be related to and integrated with educational policies.

469 *Seminar in Sociology* 3 sem. hrs.

Advanced study for graduate students interested in developing theoretical models or in special research topics in sociology. Provided different material is covered, the course may be taken for credit more than once.

SOCIOLOGY

(See Social Sciences)

SPANISH

(See Foreign Languages)

SPECIAL EDUCATION

Head of Division: Harold R. Phelps. *Office:* Fairchild Hall 103.

The Division of Special Education offers work leading to the following degrees: M.A., M.S., M.S. in Ed. Areas of specialization are: Deaf and Hard of Hearing, The Maladjusted, Mentally Retarded, Visually Impaired, Physically Handicapped, Speech Correction. Program requirements are as follows:

At least 12 semester hours in Education and Psychology are required, including Education 475 and Psychology 301.

Additional courses are selected following recommendations of the Director of the Division of Special Education with reference to areas of specialization.

Courses are listed in Education-Psychology and in areas of specialization.

SPEECH

TEACHING STAFF

Head of the Department: Charles A. White. *Office:* Centennial Building, East 286.

Professors: G. Bradford Barber, Dorathy Eckelmann, James Golden, Ralph A. Smith, Harry E. Stiver, Glenn J. Taylor, Charles A. White.

Associate Professors: Stanley G. Rives, George A. Soderberg, Robert Whitlatch.

Assistant Professor: Steven Vargo.

The department offers work leading to the following degrees: M.S., M.S. in Ed. Students may plan programs with an emphasis in drama, in rhetoric and public address, or in speech correction.

The candidate for the master's degree in speech correction must meet the academic requirements of the American Speech and Hearing Association for clinical competency. If he also desires certification for the public schools in Illinois, he must also meet these requirements.

University requirements for the above degrees are listed on pages 18-22.

311 *Phonetics* 3 sem. hrs.

Sound system of American speech and its standard and sub-standard variations. Practice in transcribing and reading phonetic symbols.

317 *Speech Clinic* 1-6 sem. hrs.

Diagnostic tests and methods of speech correction applied to those enrolled in the Speech Correction Clinic. Students enrolling in this course should have the permission of the instructor. Prerequisite: Speech 212 or 215.

318 *Clinical Procedures in Speech Correction* 3 sem. hrs.

History and development of speech correction, the procedures for setting up and carrying out a public school speech correction program. Evaluation techniques and procedures and their application to various speech disorders and to methods of speech correction.

319 *Speech Pathology* 5 sem. hrs.

Speech disorders arising from structural, neurological, and endocrine pathologies. Psychological problems, including stuttering. Emphasis on diagnostic and therapeutic procedures. Prerequisite: Speech 212 or 215.

321 *Speech Composition* 3 sem. hrs.

Theory and practice in demonstrative, deliberative, and forensic address through a study of theories of style and historically significant models.

324 *Persuasion* 2 sem. hrs.

Study and practice in the art of influencing the beliefs and behavior of men through speech. Emphasis on the Aristotelian areas of persuasion—logical, personal, and emotional—and the audience in the speech situation. Prerequisite: Speech 110 or 112.

328 *British and American Public Address* 3 sem. hrs.

Outstanding speakers of Great Britain and the United States from the beginning of the 18th century to the present and the main issues which motivated them.

333 *Modern Drama* 3 sem. hrs.

Trends in dramatic literature and theatrical production from Ibsen to the present day. Reading reports and discussions of the plays of the leading dramatists of Europe, Great Britain, and America.

334 *History and Styles of Stage Costuming* 3 sem. hrs.

Concentrated history of costumes from the ancient Egyptian period to the present time. Emphasis on the costume's reflection of cultural and social milieu. Consideration of the costume's practical application to the stage. Laboratory to be arranged with the instructor. Prerequisite: Speech 134.

335 *History of the Theatre* 3 sem. hrs.

Background for the study and production of plays including the reading of great plays of different historical periods, a study of the manner in which they were produced, and their relation to the cultural life of the time.

336 *Problems in Acting* 3 sem. hrs.

Introduction to and practice in the various advanced styles of acting prevalent in the more important periods of theatrical history and native to specific forms of comic and serious drama. Laboratory to be arranged with instructor. Prerequisite: Speech 132.

337 *Problems in Directing* 3 sem. hrs.

Theories and techniques of directing plays of differing forms, styles, and historical periods. Concentration on various aesthetic principles involved in directing different types of theatres. Laboratory to be arranged with instructor. Prerequisites: Speech 131 and 133.

341 *Advanced Oral Interpretation of Literature* 3 sem. hrs.

The oral study of selected types of literature with emphasis upon drama and poetry; projects in organizing materials; presentation of individual and multiple reading projects. Prerequisite: Speech 141.

348 *Playwriting* 3 sem. hrs.

Playwriting techniques of selected masters of dramaturgy, with practical application of the techniques in the writing of original plays. Both literary and professional aspects of writing for the theater will be considered. When possible, opportunity will be provided for the laboratory production of original scripts of quality in University theater-workshop projects. This course is also offered as English 348.

350 *Basic Audiology* 3 sem. hrs.

Methods of screening hearing; basic equipment and methods for the measurement of various aspects of the hearing function; causes of hearing loss; interpretation of test results. Practicum will be required, consisting of approximately eight hours of participation in hearing surveys in public schools and activities of the Hearing Laboratory, in addition to independent practice and testing.

351 *Speech Reading and Auditory Training* 3 sem. hrs.

Principles and practices of speech reading and auditory training. Survey of traditional methods. Communication disorders arising from hearing impairment; the visual and auditory speech stimuli. The operation and use of hearing aids and auditory training equipment. Prerequisites: Speech 215 and 311.

352 *Professional Practice in Speech Reading and Auditory Training* 1-3 sem. hrs.

Practice in providing speech reading training and auditory training for children and adults in group and individual situations. Consideration of instructional materials, equipment, and special problems of habilitation and rehabilitation for the hearing impaired. Prerequisite: Speech 351.

370 *Psychology of Speech* 2 sem. hrs.

Speech as visible and audible stimuli and responses, its origin and development, its functions, its fine arts and utilitarian aspects. The speech personality. The nature of various kinds of audiences. Prerequisite: ten semester hours in speech.

371 *Speech Science* 2 sem. hrs.

Principles of physics involved in the production and reception of spoken language.

372 *Anatomy and Physiology of Hearing and Speech* 3 sem. hrs.

Anatomy and physiology of the ear and organs of speech beginning with their embryological development; dissection displays, models, slides. Prerequisites: Biological Sciences 181 and 182.

381 *Teaching of Speech in the Secondary School* 2 sem. hrs.

Present trends in the teaching of speech and and evaluation of current teaching materials.

415 *Seminar in Speech Correction* 2 sem. hrs.

Prerequisite: Speech 212 or 215.

416 *Speech Pathology* 3 sem. hrs.

Etiology of defective speech arising from neurological and structural pathologic conditions and methods of therapy used to remedy such deviations. Prerequisite: Speech 319 and previous study of phonetics.

- 417 *Clinical Practice in Speech Correction* 1 to 6 sem. hrs.
Supervised work with speech disorders of various types. Prerequisites: Speech 212 or 215, study of phonetics and clinical services, previous clinical experience, and consent of Director of Clinic.
- 418 *Stuttering* 3 sem. hrs.
Study of the research relating to stuttering and of methods of examination, diagnosis, and remedial procedures. Prerequisite: Speech 319.
- 421 *Seminar in Rhetoric* 2 sem. hrs.
- 423 *Seminar in Communication* 3 sem. hrs.
Theory and practice in the various forms of communication.
- 424 *Persuasion and Social Control* 2 sem. hrs.
Study and practice in persuasive speech; its use in social control.
- 425 *Advanced Argumentation and Debate* 2 sem. hrs.
Advanced study in argumentation and debate. Prerequisite: Speech 125.
- 426 *Classical Rhetoric* 3 sem. hrs.
Ancient rhetoricians from Corax to Quintillian, with special emphasis upon the works of Aristotle and Cicero.
- 427 *Rhetorical Criticism* 3 sem. hrs.
Critical consideration of rhetorical and psychological principles involved in meeting speech situations.
- 431 *Theatres and Auditoriums: Planning and Design* 3 sem. hrs.
Technical problems in stage and auditorium design and planning, with special emphasis on stage, lighting, and sound equipment and control. Laboratory to be arranged with the instructor. Prerequisite: Speech 131.
- 435 *The British Theatre* 3 sem. hrs.
Trends in dramatic literature and theatrical productions in England from the Restoration period to the present time.
- 436 *The American Theatre* 3 sem. hrs.
Development of the theatre, its dramatic literature and its arts and crafts, in America from its beginning to the present time.
- 438 *Drama Theory and Criticism* 3 sem. hrs.
Theory of dramatic technique and criticism in Europe, England, and America from classical times to the present. Concentration on major writings of leading influential theorists and their relationship to the development of drama and theatre. Further emphasis on current trends and problems in dramatic criticism. Opportunities afforded for practice in drama criticism.
- 439 *Drama Form* 3 sem. hrs.
Major serious and comic drama forms in the theatre: tragedy, comedy, melodrama, farce, and their variants. Stress on origins, backgrounds, elements, influences, and effects of the various drama forms and their creators in western theatre from classical times to the present. Reading, analysis, and critique of several representative plays exemplifying serious and comic forms studied.

440 *Selected Studies in Drama and Theatre* 1-5 sem. hrs.

The field of study will vary each semester according to interests and needs of students. Units include: aspects of drama form and their application to modern and traditional theatre practice, drama theory and criticism, theatre history, and special problems in dramatic production.

450 *Clinical Audiology* 2 sem. hrs.

Advanced testing procedures employing laboratory equipment in conducting extensive hearing studies. Prerequisite: Speech 350 or 452.

451 *Seminar in Audiology* 2 sem. hrs.

452 *Aural Rehabilitation* 3 sem. hrs.

Evaluations of limitations in oral communication imposed by hearing losses; training and counseling procedures, theory and practice.

455 *Pathologies of Hearing* 2 sem. hrs.

Functional deviations in impaired hearing; related pathologies of the ear as compared with the physiology of the normal ear. Prerequisite: Speech 356 or 452.

461 *Social and Educational Aspects of Radio and Television*
3 sem. hrs.

Cultural, political, and economic problems posed by the media; current status of educational broadcasting; and development of discriminating consumers of broadcast programs.

471 *Experimental Phonetics* 2 sem. hrs.

Laboratory course in the study of phenomena prevailing in and accompanying the production of spoken language.

481 *Seminar in Speech Education* 2 sem. hrs.

491 *Internship-Seminar in College Teaching in Speech* 3 sem. hrs.
Credit for the course is given in Education (see Education 491).

497 *Research Seminar* 1-6 sem. hrs.

Introduction to bibliography, methods of scholarly research and the critical evaluation of research in the field. Must be taken by first year graduate students unless the department requires Education 475. May be repeated by more advanced students who desire direction and constructive criticism as they pursue special research problems.

499 *Independent Research for the Master's Thesis* 2-6 sem. hrs.

A student electing the thesis option must register for at least four hours of 499. Registration may be for four hours in a single semester or session, or for at least two hours in separate semesters or sessions. A proposal for research must be on file before registration for this course is approved by the student's adviser.

ZOOLOGY

(See Biological Sciences)

WORKSHOPS

393 *Workshop* 1-6 sem. hrs.

Advanced workshop for juniors, seniors, and graduate students. Credit will be given by the department offering the workshop.

Faculty

The date in parentheses shows the year the person joined the staff of this University.

RICHARD D. ABRAHAM, Ph.D. (1965)	Associate Professor of Spanish
RICHARD E. ALLEN, Ph.D. (1963)	Associate Professor of English
THEODORE BENJAMIN ALMY, Ed.D. (1948)	Assistant to the Vice President for Academic Affairs Professor of English
WILLIAM D. ASHBROOK, Ph.D. (1947)	Professor of Industrial Arts
ERIC BABER, Ed.D. (1965)	Professor of Education
G. BRADFORD BARBER, Ph.D. (1944)	Professor of Speech
BUFORD H. BASS, Ed.D. (1951)	Assistant Professor of Health and Physical Education
CLAUDE A. BELL, Ed.D. (1956)	Assistant Professor of Industrial Arts
RALPH A. BELLAS, Ph.D. (1965)	Associate Professor of English
FRANCIS B. BELSHE, Ph.D. (1948)	Dean of the Undergraduate School Professor of Education
DOUGLAS R. BEY, Ph.D. (1944)	Professor of Mathematics
ALLIE WARD BILLINGSLEY, Ph.D. (1949)	Professor of Spanish
DALE E. BIRKENHOLZ, Ph.D. (1962)	Associate Professor of Ecology
FERMAN BISHOP, Ph.D. (1960)	Professor of English
LAWRENCE E. BITCON, Ed.D. (1965)	Assistant Professor of Health and Physical Education
E. SCOTT BLANKENSHIP, Ph.D. (1956)	Professor of Education
ROGER D. BLOMGREN, Ed.D. (1949)	Associate Professor of Industrial Arts
ROBERT G. BONE, Ph.D. (1956)	President of the University Professor of History
GLADYS L. BORCHERS, Ph.D. (1966)	Special Lecturer in Speech
HAROLD J. BORN, Ph.D. (1961)	Associate Professor of Physics
LEONARD E. BRADY, Ph.D. (1964)	Associate Professor of Chemistry
PAUL J. BRAND, Ed.D. (1958)	Professor of Geography
BENTON K. BRISTOL, D.Ed. (1965)	Associate Professor of Agriculture
HERMAN E. BROCKMAN, Ph.D. (1963)	Associate Professor of Genetics
FRANCIS R. BROWN, Ed.D. (1949)	Director of Extension and Field Services Professor of Mathematics
R. ELIZABETH BROWN, Ph.D. (1955)	Professor of Psychology
WALTER H. BROWN, Ph.D. (1955)	Professor of Botany
LEONARD A. BRUBAKER, Ph.D. (1964)	Associate Professor of Education
LEONARD F. BRUENING, Ph.D. (1964)	Associate Professor of Mathematics
JASON W. BRUNK, Ed.D. (1964)	Associate Professor of Education
ROSE BURGESS BUEHLER, Ed.D. (1930)	Professor of Education
CECILIA PEIKERT BUNNEY, Ph.D. (1945)	Director of Museums and Professor
ELWOOD G. CAMPBELL, Ph.D. (1964)	Associate Professor of Education
GEORGE R. CANNING, Ph.D. (1958)	Professor of English
JAMES D. CARL, Ph.D. (1963)	Assistant Professor of Geology
LESSIE CARLTON, D.Ed. (1955)	Associate Professor of Education
DOROTHY H. CARRINGTON, Ed.D. (1961)	Director of Residence Halls for Women Assistant Dean of Women Associate Professor of Psychology
VALJEAN M. CASHEN, Ed.D. (1961)	Associate Professor of Psychology
HELEN M. CAVANAGH, Ph.D. (1946)	Professor of History
ROGER J. CHAMPAGNE, Ph.D. (1960)	Associate Professor of History
ROBERT M. CHASSON, Ph.D. (1965)	Associate Professor of Botany
JAMES E. COLLIE, P.E.D. (1957)	Associate Professor of Health and Physical Education
THOMAS E. COMFORT, Ph.D. (1965)	Head of the Department of Foreign Languages Professor of French
ARNOLD C. CONDON, Ph.D. (1964)	Professor of Business Education
CARROL B. COX, Ph.D. (1961)	Assistant Professor of English
JOHN C. CRALLEY, Ph.D. (1963)	Instructor in Anatomy
JOHN E. CREW, Ph.D. (1963)	Associate Professor of Physics
ROBERT L. CRIST, Ph.D. (1962)	Associate Professor of Psychology
RICHARD D. CRUMLEY, Ph.D. (1962)	Associate Professor of Mathematics
ALFRED A. CULVER, Ph.D. (1961)	Associate Professor of Agriculture
DEVERNE H. DALLUGE, Ed.D. (1947)	Professor of Physical Sciences
LILLIAN S. DAVIES, Ph.D. (1963)	Associate Professor of Education
FLORENCE DAVIS, Ph.D. (1952)	Head of the Department of Home Economics Professor of Home Economics
S. ELIZABETH DAVIS, Ph.D. (1965)	Associate Professor of Education
ERNEST W. DEGUTIS, Ed.D. (1964)	Assistant Professor of Health and Physical Education
ELEANOR DILKS, Ph.D. (1952)	Professor of Zoology
CLAUDE M. DILLINGER, Ph.D. (1944)	Acting Dean of the Faculty Professor of Psychology
LILLIAN S. DOCHTERMAN, Ph.D. (1963)	Assistant Professor of Art
PAUL F. DOHRMANN, Ph.D. (1961)	Associate Professor of Health and Physical Education
PAULINE DRAWVER, Ph.D. (1956)	Assistant Professor of English

- GEORGE M. DREW, Ph.D. (1962)
 ROBERT L. DUNCAN, Ph.D. (1961)
 ROBERT C. DUTY, Ph.D. (1963)
 LEO E. EASTMAN, Ed.D. (1954)
 ALICE L. EBEL, Ph.D. (1934)
 DORATHY ECKELMANN, Ph.D. (1945)
 CHARLES W. EDWARDS, Ph.D. (1964)
 ELWOOD F. EGELSTON, D.Ed. (1962)
 ALICE M. EIKENBERRY, Ed.D. (1945)
 RALPH A. ELLIOTT, M.D. (1963)
 RAYMOND W. ESWORTHY, Ph.D. (1949)
 G. HARLOWE EVANS, Ph.D. (1946)
 DOROTHY E. FENSHOLT, Ph.D. (1951)
 A. GORDON FERGUSON, Ph.D. (1964)
 JOHN W. FERRELL, Ph.D. (1961)
 HOWARD I. FIELDING, Ph.D. (1944)
 JAMES L. FISHER, Ph.D. (1960)
 KENNETH L. FITCH, Ph.D. (1963)
 EUGENE D. FITZPATRICK, Ed.D. (1965)
 THOMAS W. FLOYD, Ed.D. (1954)
 JOHN L. FREHN, Ph.D. (1962)
 BERNICE G. FREY, Ph.D. (1930)
 RUTH M. FREYBERGER, Ed.D. (1951.)
 HERSCHEL C. FRIED, D.Ed. (1965)
 WALTER H. FRIEDHOFF, Ph.D. (1958)
 WILLIAM FRINSKO, Ed.D. (1961)
 WILLIAM D. FUEHRER, Ph.D. (1963)
 FREDERICK W. FUESS, Ph.D. (1963)
 VYTAS V. GAIGALAS, Ph.D. (1965)
 C. J. GIANAKARIS, Ph.D. (1961)
 HAROLD E. GIBSON, Ed.D. (1950)
 ARLEY FREDERICK GILLET, P.E.D. (1944)
 JOHN W. GILLIS, Ph.D. (1959)
 WILLIAM N. GILMAN, M.D. (1964)
 VICTOR E. GIMMESTAD, Ph.D. (1948)
 WILLIAM J. GNAGEY, Ph.D. (1961)
 JAMES L. GOLDEN, Ph.D. (1965)
 MIRIAM GRAY, Ed.D. (1946)
 NINA E. GRAY, Ph.D. (1935)
 IVO P. GREIF, Ed.D. (1961)
 ESTHER M. GRIFFITH, Ph.D. (1947)
 DEAN S. HAGE, Ph.D. (1959)
 BARBARA C. HALL, Ed.D. (1957)
 GERTRUDE M. HALL, Ed.D. (1936)
 WARREN R. HARDEN, Ph.D. (1954)
 CLARENCE W. HARDIMAN, Ph.D. (1964)
 RICHARD R. HART, Ph.D. (1961)
 JOHN E. HAWSE, Ed.D. (1965)
 JOHN M. HEISSLER, Ph.D. (1961)
 ARLAN C. HELGESON, Ph.D. (1951)
 ROBERT E. HEMENWAY, D.Ed. (1964)
 RUTH HENLINE, Ph.D. (1926)
 HENRY J. HERMANOWICZ, Ed.D. (1959)
 *ROBERT R. HERTEL, Ph.D. (1959)
 HOWARD R. HETZEL, Ph.D. (1962)
 CHARLES R. HICKLIN, Ed.D. (1960)
 TROY L. HICKS, Ph.D. (1965)
 EUGENE L. HILL, Ed.D. (1930)
 JOHN S. HILL, Ph.D. (1962)
 ROBERT A. HOGAN, Ed.D. (1963)
 GORDON A. HOKE, Ph.D. (1965)
 J. ALAN HOLMAN, Ph.D. (1961)
 Associate Professor of Education
 Assistant Professor of English
 Associate Professor of Chemistry
 Professor of Education
 Professor of Political Science
 Director of Speech Clinic
 Professor of Speech
 Associate Professor of Education
 Professor of Education
 Professor of the Teaching of Social Sciences
 Doctor in Health Service
 Associate Professor
 Coordinator of Budgets
 Professor of Business Education
 Professor of Chemistry
 Professor of Botany
 Associate Professor of Spanish
 Associate Professor of Music
 Professor of English
 Executive Assistant to the President
 Associate Professor of Psychology
 Associate Professor of Anatomy
 Director of Computer Center
 Associate Professor of Education
 Assistant Professor of Education and Supervising
 Teacher in the Metcalf School
 Associate Professor of Physiology
 Professor of Health and Physical Education
 Professor of Art
 Assistant Professor of Art
 Professor of Psychology
 Associate Professor of Education
 Assistant Professor of German
 Associate Professor of Agriculture
 Assistant Professor of French
 Associate Professor of English
 Director of Public and Special Services
 Director of Bureau of Appointments
 Professor of Education
 Professor of Health and Physical Education
 Assistant Dean of Students and Dean of Men
 Associate Professor of Psychology
 Doctor in Health Service
 and Associate Professor
 Head of the Department of English
 Professor of English
 Professor of Psychology
 Professor of Speech
 Professor of Health and Physical Education
 Professor of Biological Sciences
 Associate Professor of Education
 Professor of Chemistry
 Professor of Education
 Professor of Health and Physical Education
 Directory of Publicity
 Associate Professor of Education
 Associate Professor of Economics
 Associate Professor of Physiology
 Assistant Professor of Geology
 Assistant Professor of Industrial Arts
 Associate Professor of English
 Dean of the Graduate School
 Professor of History
 Assistant Professor of Education
 Professor of English
 Professor of Education
 Director of Libraries
 Professor of Library Science
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